COMMISSION ON MANUAL AND PRACTICAL INSTRUCTION

IN

PRIMARY SCHOOLS UNDER THE BOARD OF NATIONAL EDUCATION

IN IRELAND.

SECOND REPORT

OF

THE COMMISSIONERS.

Presented to Parliament by Command of Her Majesty.

DUBLIN:
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BY ALEXANDER THOM & CO. (LIMITED).

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Hodges, Figgis, and Co. (Limited), 104, Grafton-street, Dublin; or
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1897.

[C.—8531.] *Price* ½*d.*

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COMMISSION ON MANUAL AND PRACTICAL INSTRUCTION IN PRIMARY SCHOOLS UNDER THE BOARD OF NATIONAL EDUCATION IN IRELAND.

SECOND REPORT.

TO HIS EXCELLENCY GEORGE HENRY, EARL CADOGAN, K.G.,
&c. &c. &c.

LORD LIEUTENANT-GENERAL AND GENERAL GOVERNOR OF IRELAND

MAY IT PLEASE YOUR EXCELLENCY,

We, the undersigned Commissioners, appointed to inquire and report with a view to determining how far, and in what form, manual and practical instruction should be included in the Educational System of the Primary Schools under the Board of National Education in Ireland, again availing ourselves of Your Excellency's permission to report our proceedings from time to time, desire to submit to Your Excellency the minutes of the evidence that we took in England between March 18 and April 9, 1897.

We have the honour to be,

Your Excellency's faithful Servants,

BELMORE.
✠ WILLIAM J. WALSH,
Archbishop of Dublin.
C. PALLES.
C. T. REDINGTON.
JAMES J. SHAW.
GERALD MOLLOY.
HENRY EVANS.
H. B. WILSON.
GEO. FRAS. FITZGERALD.
STANLEY HARRINGTON.
WILLIAM R. J. MOLLOY.
T. B. SHAW.
J. STRUTHERS.

JAMES DERMOT DALY,
Secretary.

Dated this 5th day of July, 1897.

11692.

CHIEF SECRETARY'S OFFICE,
DUBLIN CASTLE,
6th July, 1897.

SIR,

I am directed by the Lords Justices to acknowledge the receipt of your letter of to-day's date and its accompanying six copies of the Second Report of the Commission on Manual and Practical Instruction.

I am, Sir,
Your obedient Servant,
J. B. DOUGHERTY.

The Secretary,
Commission on Manual and Practical Instruction,
120, Lower Baggot Street,
Dublin

Printed for Her Majesty's Stationery Office,
THOM & CO. (Limited), 87, 88, & 89 Abbey-street
The Queen's Printing Office.

COMMISSION ON MANUAL AND PRACTICAL INSTRUCTION
IN
PRIMARY SCHOOLS UNDER THE BOARD OF NATIONAL EDUCATION
IN IRELAND.

SECOND VOLUME

OF

MINUTES OF EVIDENCE,

Comprising that taken in England between March 18 and April 9, 1897,

BEING A SUPPLEMENT TO THE

SECOND REPORT

OF

THE COMMISSIONERS.

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1897.

[C.—8532.] *Price 2s. 3d.*

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COMMISSION ON MANUAL AND PRACTICAL INSTRUCTION.

MINUTES OF EVIDENCE.

EIGHTH PUBLIC SITTING.—THURSDAY, MARCH 18, 1897,

AT 10 O'CLOCK, A.M.,

At the Queen's Hotel, Birmingham.

Present:—The Right Hon. the EARL OF BELMORE, G.C.M.G., in the Chair; His Grace the Most Rev. WILLIAM J. WALSH, D.D.; The Right Hon. C. T. REDINGTON, M.A.; Rev. HENRY EVANS, D.D.; Rev. HAMILTON WILSON, D.D.; Professor G. F. FITZGERALD, F.T.C.D.; W. R. J. MOLLOY, Esq.; STANLEY HARRINGTON, Esq., B.A.; Captain T. B. SHAW, and J. STRUTHERS, Esq., B.A.;

with J. D. DALY, Esq., M.A., Secretary.

Mr. A. W. BEVIS, Director of Manual Training to the Birmingham School Board, examined.

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Mr. A. W. Bevis.

3093. CHAIRMAN.—Will you be good enough to inform the Commission of the position you hold in connection with the Birmingham School Board?—My position is Director of Manual Training for the Birmingham School Board. That is, I have standard 1 in the Infant School, the first three standards in the Girls' Schools, the first four standards in the Boys' Schools, and the whole of the manual work in the 5th and 6th standards. The part of the manual training that I am not connected with is the 7th standard, Waverley-road and Bridge-street Organised Science Schools.

3094. Captain SHAW.—They are confined to the 7th standard and upwards. There are no lower standards in those schools?—I have the whole of the management of manual training of standards 1 to 6 inclusive.

3095. CHAIRMAN.—Will you tell us what are the fundamental principles characterising the whole work of hand and eye training?—The principles that I have tried to keep in the scheme of work we have adopted have been, first of all, accuracy. I think there is a great necessity for accuracy in every little detail, accuracy both of the hand and the eye. And the next is observance. We want to teach the children observance; to observe everything they possibly can—not only to observe what the teacher tells them, but to find out for themselves special things. So I have tried to bring out observance in all the work as far as possible. The next is reason. I don't think we should try to teach the children so much memory work. I have tried to insist on a reason for everything they say and do. I don't say we always get it, but my aim is that everything a child does he should have a reason for it; if it is a right reason, it is all the better, but I would rather have a bad reason than no reason at all. To maintain the interest of the children I think is another very important point; to try and make the lesson as much, one might say, a game really, as they possibly can, but at the same time to keep up perfect method, and discipline and order, and to try to get them to be interested in what they do. And the last thing is originality; to try and get them to originate something of their own; to make a drawing of it, and then to make a design on paper, or in whatever substance they are working on so as to bring out individual qualities.

3096. How are these principles embodied in the sequence of work designed for the standards of work from 1 to 6 as it is taken under the Birmingham School Board?—Shall I try and answer this in the separate standards?

3097. Yes, please?—In standard 1 we have paper-folding. When we first took the paper-folding our main object was to get the child to understand form, to see from the actual size or form of the paper the drawing which is put on the board, and to compare different forms together. Take a square and an oblong and see the comparison, and then take a square and a diamond and see the comparison between these. Get the child to tell you in its own language the difference. Then, when we have done that, we take the drawing of the piece of paper and alter it in such a way that the child should be able to alter the paper to the drawing by folding it over. We keep altering these into different forms, so that the child can fold the paper and make it exactly the same shape and form as the drawing upon the board, taking it step by step, and only making one fold at a time. The next is to get the child to make some drawings, the teacher folding the paper. The teacher takes a piece of paper and folds it, and the child makes the drawing of each fold as the teacher makes it. We frequently let the child have the paper and make the fold as well, because in the large classes we find they can't sufficiently see the teacher's work unless they do it themselves. Then we give them lessons in fractions—very simple ones—by making them fold the paper in the various areas. We might take a square piece of paper and ask them to fold it into a triangle, half the area, or we might say three-eighths of the area. In that case they would fold a quarter over first, and then fold it in half, three-eighths being half of three-fourths. There are a great number of exercises that we can form on that principle, bringing out their reason to see what they can do in the way of very simple fractions. That is practically the whole work. Of course there is a great deal of detail in it that would take too long to go through this morning. The accuracy is, of course, in the folding; the observance, in observing the various shapes and seeing the paper is like the drawing. The reason is to see what has been done, and the interest is thoroughly maintained from the objects they make, and the mode and manner of the teacher in taking the classes. We have dealt in standard 1 with planes. We have not touched on heights, or elevation, or thickness. In standard 2 we take thickness so as to bring in a solid. We take a brick, as it is a simple thing, and we let the child tell us everything he can about the brick.

3098. Most Rev. Dr. WALSH.—This is a piece of wood which you call a brick?—Yes, it is a piece of wood, and we ask everything about this—color, shape, size, etc.

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3099. Chairman.—You don't ask the child what the material of the brick is?—Yes, we frequently do ask them how a brick is made and give them the proportion of a brick, then we make a drawing of this brick in plan and elevation, and ask the child to place the brick down in this position; we draw it in several positions on the board and place bricks in different positions on the table, marking them A, B, &c., and the drawings 1, 2, and 3. If I say A they have to say the number of the drawing corresponding to it; of course we would not put them in the same order.

3100 Most Rev. Dr. Walsh.—You may mention that these are very small pieces of wood; the word brick may be misleading?—Yes, but the bricks we use in these cases would be large so that the child should see them.

3101. Chairman.—When you say you put the bricks in different positions that does not involve any perspective?—No, only plan and elevation.

3102. Can you get more than three positions?—Six positions, keeping to rectangular projection; you could get any number of positions if you put them on the slant.

3103. Professor Fitzgerald.—You don't generally work them on the slant?—No, we don't work them on the slant at all, we keep them in a rectangular position, that is to say, at right angles to the board. After we have got them to place bricks in various positions from plan and elevation we ask them to place them from description, we will say we want it to lie on its face or side or to stand up and they place these bricks down from description in any position. We sometimes ask the children to shut their eyes while they are doing it so that they shall not have any chance of copying, and also I think to use their senses of touch in order to feel which way the brick is lying, they can easily tell with their fingers whether it is standing up or lying down. We have half bricks and three-quarter bricks, and we ask them to make lines of certain lengths, 2½, 3¼, 3¾ long, and they have to build squares of certain sizes and oblongs and triangles, and to make each side so many bricks long or so many bricks and a fraction long. As this has a good deal of memory and a good deal of reasoning about it, we introduce with this a more recreative part of the work, string work; after having taken, say, twenty minutes of this mental work, we should give them some string work exercises, which might be the making of knots, tying up parcels, or even doing some simple string tricks that interest the children, and at the same time require a good deal of dexterity of hand to do them neatly; that is a sort of light part of the work to alleviate the heavier part. Of course accuracy is in parcel tying and placing the bricks in position; the observance is right through it, in observing the different forms: there is reason in following the drawings and the interest is very marked in this, quite as much as in the paper work; originally we let them make their own drawings from their own bricks, build anything they like, making the plan and elevation on some squared paper that is given to them, so that we could use that another day if we wanted to.

3104. Chairman.—Now as to standard 3?—We take wire work, we have a pair of pliers and a rule; our first thing will be to bend the wire into a right angle, the pliers are not made so that they bend a right angle but they have to judge that by the eye; after that we get straight lines and acute angles, oblique angles and straight lines, then we get to curves; we might make a leaf or some fruit in wire and various shapes that could be obtained from simple curves. Then we get the regular curves, the spiral, the oval; they are very much harder than the irregular curves. Then we get a combination of the three put together. We might take a design with a straight line, right angle, acute angle and curve in it, and such exercises, are, perhaps, the most interesting. The most difficult would be to make up freehand designs from wire, taking each piece of wire for a different curve and sewing them on a card so that they form in themselves a complete design. It might be an ordinary freehand copy. Of course, the accuracy is in bending the wire. First of all, there is judgment in judging distances. We very often give them an oblong and make one side very much longer than the other, but dimension it differently, to watch if the child would make it according as it looked or as it was dimensioned. Then we test their accuracy in measuring to within one-sixteenth. Observation is observing the position the wire is to be placed in before they bend it. The reason is in thinking out why they should do it in a particular way, and the interest is fully maintained by the articles they make, and the method of the teacher. Originality is brought out where they make their own original designs. In standard 4 we have card-board modelling. Here we take a step in advance in a way that we have more tools to handle. We have a knife and a square and a rule and a cutting slab. It requires more dexterity in handling tools. The first thing is to make a drawing of some simple design—it may be a box or anything that a child likes to design. We make the drawing on the cardboard; we cut it out and fasten it together. The scheme we have adopted in Birmingham is different to most other schemes in the card-board work, for we don't use any gum or gummed paper. The inconvenience of gum in our schools is very excessive. They not only mess the desks and themselves, but waste the gum very materially; so we have done away with gum altogether, and the cardboard is fitted together with little hooks fitting into holes in the cardboard. Then in the cardboard work we begin with very simple forms, shapes, and designs—cutting out such as a hexagon, a letter Y, or a letter A before we begin to build up anything in particular. The last part of the work is where we join the cardboard together with little tin pins; they are put through the little holes made in the cardboard, they are then bent over like a little rivet. These pins take the place of the gum or any adhesive substance.

3105. What are the pins made of?—Very fine tin, so that there is no trouble in bending it at all, that is, the built-up work. We use small pieces of cardboard. There is no waste in the cardboard, because we can always use up the small pieces in this way. That is standard 4. Of course the accuracy is in the drawing and cutting out, the observance of the form and reasoning throughout. The interest is fully maintained by allowing them to originate their own design. I may say we give them some leading principles upon a square, and then give them a design in the square, and ask them to make a new design of their own on the same principles, not letting them get into any curves, but simply keeping to the right angle and straight line. We lead them, step by step, to design for themselves. Up to standard 5, all the previous work has been done at the school by the ordinary class teacher. There is no special room required for it, and no special teacher, but when we get to standard 5 we have central workshops to which we send the boys from the various schools to receive instruction. At each centre we have a qualified teacher who devotes the whole of his time to teaching the particular subject. The two subjects taught are wood work and metal work, and we take twenty-four in each class at a time, four classes a day for five days a week, that is twenty lessons a week those teachers would give.

3106. How long do the classes last?—One hour and a half at the workshop.

3107. Most Rev. Dr. Walsh.—How often in the week?—Once a week.

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3108 Professor FITZGERALD.—But the teacher teaches how often?—The teacher gives twenty lessons a week.

3109. CHAIRMAN.—You mean one lesson a week for each class?—For each class. They come from the various schools, of course, in the vicinity. We have about six schools attending each centre. We have eight centres, and practically forty-eight or fifty schools altogether. They learn metal work and wood work In the wood work in standard 5 we give them simple exercises in planing up, chiselling, and sawing. We do not at all attempt in standard 5 to make a joint or to join two pieces of wood together. We confine ourselves entirely to working on one piece of wood. In standard 6 the main difference between the work is the carrying on of standard 5 to two pieces of wood and fitting the two together, so as to test the accuracy with which they work, and to give them more pieces of work to deal with. Of course, it requires more skill and memory and brain work to manage the two pieces than it does the one. That is, you may say, the hard line between standards 5 and 6; otherwise it is simply a little more difficult work, as we use two pieces instead of one. In the metal work we use flat sheet metal in standard 5, in which they make various shapes They have to make the design first of all upon their metal from their own drawings, and then they have to cut it out and file it accurately to measurement. In standard 6 we take the sheet of metal and bend it into various shapes after it has been cut out. That will give both plan and elevation necessary in the drawing. We may make a flat iron stand or an easel. We also take cast-iron which is a harder material to work in, and chip and file these up into various shapes, such as a square or oblong, surfacing the top, and testing it on a surface plate. Of course, there is the marking out of it, which they have to follow from their own drawing. Every boy has a drawing which he works from. The drawing in both standards 5 and 6 in wood and metal is done by the ordinary school, taught by the ordinary class teacher in the ordinary room. They use their drawing board, square and set-square for the whole of the work which is thus slightly different from that adopted in other towns. They generally have drawing books and use a ruler, not a set-square. That is the main difference. That is a very short digest of what we do in the 6th standard.

3110. Would you tell me in a few words, for the sake of making it clear in my own mind, what is done in standard 7, and what boys do it, without going into details?—They go to these two schools, the one is Waverley-road, where they teach them both wood and metal, and then there is Bridge-street, where we only have wood. They take rather more advanced work in the wood work. They take harder joints; they might make a box by dovetailing the edges together, or make some simple articles, not necessarily useful, but for the purpose of joining, perhaps, three pieces of wood together.

3111. What class of boys would they be?—Boys who have left the elementary school, the 6th standard boys who leave; they are supposed to go to an upper standard school. We get the best of those who leave. It is really the carrying on, a bit more advanced, of the instruction they have had.

3112. Captain SHAW.—Do the boys not go through seven standards in their ordinary elementary schools?—Not the majority of them. There are a few which are very far away from the organized science schools that we have a 7th standard in, but hardly in the girls' schools we have not more than half a dozen 7th standards.

3113. CHAIRMAN.—Will you now describe your experience as to the disciplinary education of the children, their physical, mental, and practical education?—My experience with children is that unless we can get discipline in a class there is no teaching them anything at all, therefore the work is designed so that you can have discipline, and do it as class work. Individual work would be very well if we had classes of from twenty to twenty-four, but with the large classes we have, from fifty to sixty, unless there is discipline in the work, every boy doing the same thing at the same time, taking the same step, and doing it as a drill, we cannot teach the work anything like so efficiently as we can when we do it in that way. Towards the end of the year, within the last three months after they have been taught to go slowly, which is our great difficulty; after we have taught them this we can allow a little individual work, but before that time it is not very prudent unless you have a good class and good children.

3114. In the Rea-street school yesterday, in the metal shop, we saw some boys doing one thing and some doing another; was that one of the exceptional cases?—One of the exceptional cases to show the different work they were taught, and really that does not apply so much to the manual centres as to the hand and eye. The physical applies more to the manual centres, we find very few boys incapable of handling tools; they are very clumsy to begin with, and you imagine at the first start that they are not nearly strong enough for the work, but by the time that they have had six months' work we find a totally different thing. It is not the strength required so much as it is the experience, and we find that this brings far more accuracy after a time than one would imagine you could get; of course, in the hand-and-eye work, the work is very slight. First of all we had a doubt whether they could bend the wire, but we got standard 3 children to bend wire perfectly easily even in the girls' schools. The mental instruction, which I have described, makes them quick and alert to observe errors. I frequently desire teachers to make mistakes so that the children should find them out, that the child should be taught to find mistakes as well as to see when a thing is correct. The mental work throughout is one of reason and not memory; there is, you may say, no memory work whatever through the whole course from standard 1 to standard 6; the practical education is in making the child apply the teaching that he has got to a useful thing. There are so many men and so many children that know a thing, but cannot apply it; they know a principle but when it comes down to the actual practice, something that they have not done before, you find they are absolutely useless in applying that principle to the work. You may ask a child a question, and if you ask him the same question again in the same words he will answer it. Ask him the same question in another way and he is all at sea, he does not see that it applies. My advice to the teacher is never to ask the same question in the same way, and never to give the same work over twice. Of course it is a difficult thing to get done, but I think the questions should be put in as many lights as we can possibly put them.

3115. What is your experience as to how the teachers first looked upon the work?—When they first look at the work they imagine it is very babyish, and scarcely worthy of consideration, they come to the class with an idea that it is a game, and that there is nothing to be learned in it, and they don't put their minds to it. When I first had teachers' classes it was a most difficult thing to teach. At my first examination 75 per cent. of the teachers failed because they did not seem to understand that there was really anything in the work at all.

3116. Most Rev. Dr. WALSH.—Was that in the examination of the teachers, or in the examination of the school?—No, of the teachers, you could not get their attention on the work, they would not give their minds to it; they thought "Oh, I know it, I don't want to learn it at all," but after twelve months' teaching they found that it was totally another thing, that it was only those who did put their minds to it could teach it at all, they found their classes got altogether

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unruly, and the work was not play by any means; it really requires a clever teacher to teach the work. The very first idea was that it could be given to the pupil teacher, but they discovered their mistake, it is only the really good teachers that can get successful work. Now with my classes of teachers I can get through the work in at least a quarter of the time I used to, simply because they come now with the notion that "we must give our minds to it and try and understand it."

3117. Chairman.—Do you find that to teach the lower standards you require a better teacher than to teach the higher ones?—Yes, as a rule I should say we do; but there are some teachers who could teach a lower standard better than they could teach a higher standard, they are more adapted to teaching younger children.

3118. It is more difficult to teach younger children than the more advanced?—Yes, if I had a school I should put the best teachers on the lower classes.

3119. So you would begin with a new teacher rather high up; instead of promoting him upwards you would promote him downwards?—I think a change beneficial to the teacher and to the children.

3120. Professor Fitzgerald. — And would you start a young teacher on the senior classes?—If he had sufficient ability. I am talking now of teaching quality, there is no use in taking a young teacher who has not the ability to teach the 6th standard, and putting him to the 6th standard.

3121. I thought you said it was classes 1 and 2 that required the best teachers? — Yes, but by saying the best teachers I don't mean the cleverest.

3122. Chairman.—You mean those who have more the knack of communicating what they know?—Yes.

3123. Most Rev. Dr. Walsh.—You mean you would rather put them to teach in standards 3 and 4 than to teach the infants?—Yes, provided they are clever enough to teach the standard to which you put them; there are a great many teachers who are very clever but are totally unable to teach the 6th standard.

3124. Chairman.—Could they teach a lower standard?—They could teach a lower standard very likely.

3125. Most Rev. Dr. Walsh.—But that difficulty does not apply in the lower standards?—No, but it is very difficult to draw a hard-and-fast rule.

3126. Chairman.—What is your experience about how the teachers acquire a proficiency in teaching?—The older teachers are very awkward in picking it up, they don't seem to grasp the work like the younger ones; I should prefer a class of pupil teachers and teach them while pupil teachers rather than to have them older.

3127. What have you to say as regards a comparison of trained teachers with artizan teachers?—That only refers to standards 5 and 6; I should prefer to take a trained teacher and train him to the practical work than I would to take an artizan and train him to the teaching. One reason is because an artizan, when he comes to a school, is of such an age that you scarcely can train him to teach or to manage children. There are exceptions; I have one or two exceptions where the artizan is better than the trained teacher, but as a rule the trained teacher makes a far better teacher of practical work than the artizan.

3128. I suppose there are cases in which an artizan who is a very good practical man does not know much about the theory of his work?—Very often, and as a rule I should give my views in favour of the trained teacher.

3129. What is your experience with the most vehement opponents of the work?—It has been rather marked in Birmingham. I find that a teacher that has the courage to stand up against the work is a teacher that really has got education at his heart and sticks up to its principles. He does not understand the work, and that is the reason that he generally is against it from my experience; but they generally turn round, and in nearly all cases have turned round in Birmingham to be my best supporters, because they take an interest in their work, so much that when they really understand it and see the good it is doing they become—well, my best supporters.

3130. What is your experience as to the difficulty in teaching manual work?—The greatest difficulty is to get the teacher to go slowly enough; he wants to work a syllabus right through, the same as he has been used to, or he wants to make a show and get the children to do a lot of exercises that he can put into a showcase and please the children and visitors, and in that way they don't aim sufficiently at accuracy. Accuracy and asking questions are the two hardest points to get a teacher to realise the importance of, to ask questions on everything they do and get the children to understand. It is very difficult to get the ordinary teachers to realise the importance of going slowly and getting done well what they do.

3131. What do you say as to a hard-and-fast Code being insisted upon?—That is a point I have just spoken about, I think it is most detrimental to the work; if you are to start a code of work and say every class is to get through a certain amount of work you will find it will do the children more harm than good. When I first started the teachers had got such a habit of having a hard-and-fast code that many head teachers said to me: "You put down in black and white what the children have to do, and I will see it is done." That is one of the objections I have to the code; you must lead a child and not drive him or push him; if a system of that kind was insisted on I think it would be ruinous to the work.

3132. What would you say as to the graduated syllabus of work without a time limit?—That, to the ordinary teacher, is about the best thing we can have; give him a graduated syllabus and say, "Don't hurry, take it slowly and carefully, and see what is done is done well; I am not going to limit you to time, but there is your work, take it in that order," and for an ordinary teacher that is the best way of carrying on the work.

3133. Will you tell us what your experience is as to giving the teachers perfect freedom, insisting only on the principles being taught?—That, in the case of a very good teacher, is the best plan you can adopt. If you get a teacher who is an enthusiast and a good teacher let him be perfectly free except saying, "These are the principles I want you to teach," and you will find you will get the work better done; you cannot put all teachers down to do the work in the same way; I may teach it one way and another may teach it equally well but slightly differently; some men are particularly good at curves; it would be a pity to stop them teaching curves when they could teach curves better perhaps than straight lines; I say let them teach it because it is their bent and they will do it well; if you are going to insist on a teacher having all straight lines before he gets to the curves that I think would be a mistake. Perfect freedom to a good teacher who is enthusiastic I would always allow.

3134. Will you tell us what your opinion is as to the necessity of this training for the future of the children?—We find that we have a great number of applications from various works asking for children who have attended our workshops, both in the wood and metal, and after they leave us and get into the workshops we have very encouraging letters from their parents, or in a few cases from the managers, saying how the children have got on and succeeded in the work. Then my own experience with men in workshops for many years is that I find that they cannot apply any principle that they have to any other thing than the one they have been used to. They have been used to one kind of work; if they are asked to do another kind of work they are all at sea, and don't seem to be able to apply the education they have learned.

3135. You are alluding to artizans who have not had this training?—Yes, that is the necessity of the work, so as to teach the children when they leave school to be able to apply the various principles.

3136. Do you mean that a man who had been a good metal worker would not be able to become a carpenter if he wished to change his trade?—I was not exactly alluding to that, I was meaning principles.

3137. In the same trade?—In any trade, one man may know a good deal of geometry on paper and be able to pass an examination well, let him have a piece of wood, and having made a curve touch a certain line he would not be able to see that all that he had learned on paper could be applied to the actual practical material. He seems to lose sight of the fact that the facts he has learned at school have anything to do with the practical work. A child now when he does drawing in the class-room knows that what he is doing there he has to do again on wood or iron or any other substance, and he associates with that substance what he is doing, and that makes it a more practical exercise for him.

3138. Perhaps you would now tell us what the cost of tools and equipments is, and also as to the repairing and replenishing of tools and equipments due to depreciation, breakage, and so on?—In standard 1 the tools required are nothing at all; of course there is the ordinary blackboard, a chequered blackboard is better, but that in an ordinary school would be no expense, the material runs out to about ½*d.* per child per year; if you have a class of sixty you have sixty halfpence in the year for that class. We don't go in for expensive paper, and the cost for the last year ending March 25th, 1897, comes out 1½*d.* per child; there are no tools, so there are no breakages or thefts. In brick-work the tools come out to 6*d* per child per year, that is a simple box of bricks and a small piece of string. The material is, if anything, less than standard 1, because we only use a very little piece of dotted paper for making their own drawings, that only forms an occasional exercise, the renewals are not much, the wooden bricks last a long time, and the tin boxes last a long time; we put down ¾*d.* per child per year to cover the loss of material, and by thefts. I am giving prices rather over than under. For wire-work the tools are more expensive, a pair of pliers and a ruler come to 1*s.* 2*d.*; the material is very cheap, but we use a good deal of it; the teacher has to use a good deal in order to work out his exercises, and frequently a boy is allowed to take a piece of wire home to see what he can do with it, so I have put down 1*d.*, that is considerably over what it has been for the last year, but I feel the more the teachers know of it the more they will get through, so I have put down 1*d.* per child; it works out between ½*d.* and ¾*d.* for the present year, but I feel sure it will be more than that.

3139. Most Rev. Dr. Walsh.—For a whole year's supply of wire?—Yes, you can get 200 pieces of wire for 1*d.*, a boy cannot get more than forty lessons in a year, and if he uses two pieces for each lesson it is only eighty, that is not ½*d.* For cardboard work the tools come more expensive, 3*s.* per child; of course that is only the initial expense, it does not occur every year, that is in first starting the work. Those tools will last nearly a lifetime, but ten years easily; the material comes more expensive, cardboard 3*d.*, sharpening knives, and replacing stolen knives,—it is very seldom we get any stolen, but we do,—I put down at 6*d.* per child per year: that is allowing a fair margin, but on this point I cannot speak so definitely as we have only had six months' work.

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3140. Chairman.—What is the cost of these knives?—5½*d.*

3141. Professor Fitzgerald.—Are they made in Birmingham?—I don't think so, I fancy they are made in London.

3142. Mr. Harrington.—Are all these materials supplied by contract or by the Department?—By contract; where we have a bulk, such as rulers and knives and those things—all by contract—for wood-work, I am not including drawing in this; the wood-work is about £2 5*s.* per boy; tools for a class of twenty-four are over £50.

3143. Chairman.—What does that include?—The whole of the tools; it does not include the building or the benches, but all the ordinary tools both for the teacher, the specimens of wood and everything required for teaching it.

3144. Before you go from that, what would be the cost of such a shop as we were in yesterday afternoon in Dudley Road, with its equipment of benches—you mean tables—that is what you call benches?—Yes; I think it would be a little over £60.

3145. Including the building?—That building, I fancy, was about £400.

3146. Then there would be an initial expense in a case of that sort of at any rate £460 for the building and the benches before you began to provide either tools or materials?—If you build on to a school you will get it very much cheaper; this is entirely a separate building, it is a good building; the foundations are good. You could build one for £250 that would answer the purpose very well; it is a case where you can spend as much as you like.

3147. Most Rev Dr. Walsh.—That building serves as a centre for a number of schools round about?—Six or seven schools. The building I have had nothing to do with, so I would rather not speak of it.

3148. But you are aware that it serves as a centre for a number of schools?—Yes, they all use it. We have a centre here in the Church school where the building has not cost one fourth; they have used ordinary houses, knocking the partitions down, it does not look so well and is not so substantial, but the teaching is exactly the same.

3149. Rev. Dr. Evans.—When you say Church school, do you mean a denominational school?—They are Church schools I think, but any of the voluntary schools can attend there.

3150. But there is a distinction between it and the Board schools?—Oh, yes, entirely separate; I know several of the Church schools that go there. The material for the wood-work runs out at 1*s* 2*d.* per child per year; but the renewing of tools due to depreciation, and breakages and thefts, comes to 6*d.* per child.

3151. Chairman.—You told me I think yesterday that you thought, without knowing exactly, that that building would cost about £400?—Yes.

3152. How many children would use that building in the course of a year?—From 380 to 400.

3153. Then that would come to about £1 per child?—That is only taking the building to last a year, but if you take it to last twenty-five years it makes a great difference. On an average there are 380 children attending each centre each year; that makes the yearly expenditure for each child of 1*s.* 8*d.*, leaving out the building.

3154. Captain Shaw.—Does that include the teacher?—Oh, no; the Board's regulations are £80, and the highest salary £120. Those are our regulations. The London Board is different; I think they begin at £90 and go to £150. We have two teachers, one at £130, and the other at £150.

3155. Chairman.—If you wanted to arrive at the cost of the building per head, the fair way to take it would be to assume that the building cost so much; then to add a sufficient amount to that to cover the interest on the money and the cost of repairs, and so on, and divide that among the children attending in

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the year?—Yes, that would be the way; you would really put a depreciation on the building every year. In the metal work the tools are slightly more expensive; they come to £2 10*s.* a child, that is including the vices, but not the benches and table, and of course not the building. It comes to 5*s.* per child, more than the woodwork, but the material comes considerably cheaper; that only comes to 6*d.* instead of 1*s.* 2*d.*; but, again, the renewing of tools and depreciation of the tools is considerably more and comes to 1*s.* instead of 6*d.*, so the yearly expenditure is 1*s.* 6*d.* per child per year, as against 1*s.* 8*d.* for the wood-work. It is slightly cheaper; it is the files make up the renewing of the tools so much.

3156. In the metal work is there not rather expensive machinery; take for instance metal turning; some of that machinery would come expensive?—Yes, it does come more expensive.

3157. Most Rev. Dr. Walsh.—You include that in the £2 10*s.*?—Yes. That includes sufficient lathes for the twenty-four boys to have occasionally.

3158. Chairman.—What do you do with the articles made by the children?—When they are well made we always allow them to take them home, both in the hand and eye and practical training; they take them home and show them to their parents, and they take a pleasure in taking them home, and the parents like to see it. We don't keep any work more than two or three months old in the shop, and of course we should have too much to keep if we did.

3159. Do you find as a rule that the parents like the children being taught this manual work?—With very few exceptions. There are a few exceptions where they object to it, but I should think if you take a centre of 400 boys you would not get more than three or four objections.

3160. Most Rev. Dr. Walsh.—That is to say, not more than one per cent.?—About one per cent.

3161. Chairman.—Upon what ground would they object?—Well, it is various; some say that their child is going to be a clerk, and does not want to be a carpenter, and their objection is to his going to the workshop at all; but the more ordinary ground is that the child is delicate and not strong enough for the work.

3162. Is it compulsory upon every child?—It is compulsory unless they get a doctor's certificate, or the parent comes to the office and gets a consent from the office that he need not send his child; as far as I am concerned it is compulsory, until they bring word from the office that they have been excused.

3163. Most Rev. Dr. Walsh.—I understood you to make a distinction between manual instruction and hand and eye training: would you kindly explain the distinction you draw?—It is simply in the standards. Hand and eye was started in the lower standards really to bridge over a gap between the kindergarten work and the manual instruction.

3164. Then manual instruction, as you understand the term, applies chiefly to working in wood and metal?—Entirely.

3165 And by hand and eye training you mean those preliminary exercises in cardboard, paper-folding, and wirework?—Yes, it is practically all manual work, but we have got such a habit of calling it by the two different names.

3166. It is a very convenient use of the words. Between the infant kindergarten and the practical instruction in the standards is there any gap in England: there is in Ireland, and that is the reason I ask the question?—In most schools there is a gap.

3167. But is there in your system in Birmingham?—Oh, no; it continues from the baby classes to the seventh standard, with the exception of the girls, and they have cookery, which is the same thing.

3168 Professor Fitzgerald.—Have not the girls got needlework?—Oh, yes.

3169. Most Rev. Dr. Walsh.—About the fitting in of this work with the other school subjects, there is a good deal of elasticity allowed in the choice of subjects under the Code of the English Education Department?—Yes.

3170. Kindly explain how the different subjects stand, as regards some of them being compulsory and some not?—That is practically a Code question.

Captain Shaw.—You will get that from one of the Inspectors.

3171. Most Rev. Dr. Walsh.—But under the rules of the Department manual instruction is not compulsory?—No; we may take it as a class subject.

3172. A certain number of subjects must be taken in each school: reading and writing and elementary subjects are of course compulsory?—Yes.

3173. Then there are others from which you may choose a certain number?—Yes.

3174. And this manual training is one of them?—Yes; but if you take it as a class subject, I think you are bound to take object lessons as well.

3175. Professor Fitzgerald.—Your technical words in this country are a little different from ours: what do you mean by a class subject?—A subject that we can get a grant for.

3176. And what is not a class subject?—A subject that we should teach purely because we think it ought to be taught, and a subject that the children ought to know. For instance, if we take object lessons and hand and eye as the two class subjects we should take geography, purely because we think it ought to be taught—that is a Code question

3177. Most Rev. Dr. Walsh.—How do you train the teachers for this practical work?—I have classes at one of the schools purposely for teachers for the manual work, in which I pass them for the City and Guilds of London examination.

3178. Is the teaching in the schools done by the ordinary school teachers, or are there special teachers for this work of hand and eye training?—It is done by the class teacher.

3179. Then as to the manual instruction, as you call it, is that done by special teachers?—That is done by special teachers.

3180. But in the lower classes, up to standard 4?—It is all ordinary teachers.

3181. Standard 4 included?—Yes.

3182. Do you find a difficulty in getting teachers to take up this branch of school-work?—Not now—not at all.

3183. But you did in the beginning?—In the beginning there was considerable difficulty.

3184. Do you consider that all teachers of elementary schools are capable of giving this instruction, all ordinary teachers?—That is a very wide question.

3185. Have you found teachers that were not able to do it?—Oh, yes, I have come across a few teachers who were practically incapable of doing it.

3186. Were they capable of doing much besides—you don't know that perhaps?—No; I have known one or two teachers who have been up at the examinations three or four times, and failed each time; there are not many of them.

3187. Now as to the two seventh standard schools that you described to us: is there special literary instruction given in these schools, or are they special schools set apart for practical work?—Oh, no; there is literary work as well.

3188. Is there any collision between those two schools and the technical schools which some of us visited yesterday afternoon; do they cover the same range of practical work?—Well, hitherto I don't think they have.

3189. The work is of a more general character in the two schools you mentioned?—In the technical school they take more the artizans from the different artizans' apprentices, and so forth, and we, in the seventh standard school, don't touch the apprentices at all.

3190. Up to this the teaching in the technical school has been in the evening?—Yes.

3191. But, from this out, it is also to be a day school?—I believe it is.

3192. You don't anticipate any friction between the two sets of schools, both teaching in the day time?—We have scarcely had time to think over it.

3193. Will you kindly tell us about the ages of the children in the different standards in your schools here in Birmingham?—In standard 1 we expect them about six in the infant school, and seven in the upper schools; where they are too old to go into the infant school we have to have standard 1 in the upper schools, they don't know as much as they do when they come to the infant school.

3194. At what age are they in standard 6?—standard 6, about twelve or thirteen.

3195. So a boy of twelve or thirteen has finished his school education here in Birmingham, his ordinary elementary school education?—By the time he gets to fourteen I think he will be allowed to leave.

3196. But many apparently finish at twelve; we have seen children of twelve in the 6th standard?—I don't quite know what the rule is; the Board regulations would tell me that.

3197. From the children you see working in this wood work and metal, you could form some idea as to their ages?—Twelve or thirteen, but I think they would not be allowed to leave school until they are thirteen.

3198. But you think children of that age are capable of going through this work?—Oh, yes, we very seldom get them at fourteen.

3199. Where do the funds come from for all this wood and metal work?—For the wood and metal we get a grant from the Science and Art Department—that grant this year is over £1,000.

3200. To the State-aided schools in Birmingham?—To the State-aided schools in Birmingham.

3201. Then there is no difficulty in England in getting grants for these special subjects from the Science and Art Department to State-aided schools?—No.

3202. There seems to be in Ireland?—There is no difficulty in England; I have never known of any.

3203. As a matter of fact, aid is given by the Science and Art Department to the schools in Birmingham?—Yes.

3204. And those are all State-aided schools?—It is also given to the Church schools.

3205. I am making no distinction between what you call Church schools and other schools: I am speaking only of schools that receive the ordinary aid from the State: the schools you speak of as Church schools are State-aided schools?—Yes.

3206. Mr. REDINGTON.—Could you tell us more in detail the mode in which you instruct the teachers as to hand and eye work?—Yes, my first lesson to the teachers is usually to tell them exactly how I think the children should be taught, and what are the chief principles I want brought out, that I don't want at all a lot of work done, I would rather have a quarter of the work and have it well done.

3207. What is the number of lessons given?—I find about six or seven lessons in the hand and eye work is sufficient for a fairly clever teacher to pass the examination,—the examination which I give twice a year. And for a second course for those who are not quite so sharp; they attend a second course, and generally get the certificate at the end of the second course, that will make double the quantity of lessons.

3208. When are those lessons given?—On some week-day—Thursday evening and Saturday morning.

3209. Have they to get a certificate before they are allowed to teach the subject in the schools?—No; but we expect them to get a certificate after they have been teaching it some time. We get a large number of new teachers in who have to take charge of the standard, and it would not do to insist on this standard at first.

3210. But can they teach a subject until they have learned it?—They can begin to teach after a first lesson; you get very little practice at a lesson.

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3211. Do you visit the schools and superintend the teaching?—Yes, I visit every class.

3212. So that you are able to aid the young teacher?—Yes; I frequently give a lesson in front of him on purpose to show him the manner in which I want the subject taught, and the whole of my examinations are more lessons than examinations.

3213. How many schools do you visit in that way?—The whole of the schools. There are about fifty-four with over 150 departments, taking infants, girls, and boys.

3214. How much time is given per week to the hand and eye work?—If it is not a class subject they give an hour a week, and if it is a class subject they give two hours.

3215. Do they get any grant for it as a class subject from the Education Department?—From the Education Department.

3216. Who determines whether it is to be taken up as a class subject or not?—The head master.

3217. Why should it not always be taken up as a class subject?—The district rules it sometimes. Some head masters think that in their district it is not suitable for a class subject; they prefer to take grammar or geography, they think it is more important; it is ruled entirely by the head masters.

3218. How much is paid per child for the hand and eye work when taken up as a class subject?—1*s*. or 2*s*.

3219. Do you know what subjects are usually omitted in order to make room for the hand and eye lessons?—Grammar or geography, in our case.

3220. Have they to get leave from the Department?—From the Board, not from the Department.

3221. Most Rev. Dr. WALSH.—Grammar and Geography are not compulsory in England, under the rules of the Department?—No.

3222. Mr. REDINGTON.—Now, as to the cost of the wood work: would you kindly tell us if I have it down correctly? First of all the material—1*s*. 8*d*. a year?—Yes.

3223. The teacher gets as salary about £100 a year for 400 children; that would be about 5*s*. per pupil per year?—That would be the average.

3224. And, if the workshop cost £400, that would be a capital sum of £1 per pupil: how much ought we to charge as interest to cover depreciation and repairs?—I think 2*s*. would be near the mark.

3225. Well, let us say 2*s*. per child, that tots up to 8*s*. 8*d*. per child per year?—It seems too much.

3226. What is incorrect in it?—If it were a building for 400 the building would last fifty years.

3227. How much ought I to put down as interest per child?—The depreciation is not much because it is only one room; there is not a lot of fittings.

3228. Shall we say 1*s*. 6*d*.—7½ per cent.?—That would be nearer it.

3229. Then that makes 8*s*. 2*d*. How much would be given by the Science and Art Department per child?—About 7*s*.

3230. Captain SHAW.—The average payment in England is between 5*s*. and 6*s*.

3231. *Witness.*—The old pay used to be 6*s* or 7*s*.; I don't think the new rules have much altered it.

3232. Mr. REDINGTON.—Could you tell me the attendances of each child and I can multiply them by 2*d*.?—Forty-three, or 2½*d*. if you get excellent; say 2¼*d*., that would be better.

3233. That would be 8*s*.?—Yes, that is rather over it; I think 7*s*. would be practically what it would run up to.

3234. Seven shillings is what you get from the Science and Art Department to cover a cost of 8*s*. 2*d*.—is that right?—Yes, it seems fairly right.

3235. Is there any building grant given by the Science and Art Department?—I don't think there is in the manual work.

3236. Professor FITZGERALD.—How was this introduced into Birmingham?—My first knowledge of it was in applying for a situation as Director of

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Manual Training, which I obtained, and I was told that there were three workshops built but nothing done in them. There had been some Sloyd taught in two schools which they asked me to visit and report, and I was to visit the other three workshops and see what could be done; and they gave me, I think it was four months or three months to devise a scheme to submit to the Committee, and during that time I was to visit London and one or two other places to see what was being done; and at the end of the three months I submitted my scheme, and it was accepted, and I started with teachers' classes.

3237. Before you came to Birmingham — the people here wanted something of the kind to be done?—Before I came to Birmingham they advertised for a Director so as to carry on the work.

3238. Do you know how the people of Birmingham got to care for it or take an interest in the subject at all?—Yes, I think so, judging from the papers.

3239. You don't know how it was brought under their notice first?—The first I think was Mr. Kenrick, the Chairman of the School Management Committee, who wrote for Mr. Ricks, of London, to come down and give a lecture; he gave a lecture on hand-and-eye work which the teachers attended.

3240. Then it was originally started after creating an interest by means of lectures?—I think the Board are entirely responsible; they thought it should be taught, and introduced it.

3241. They first tried to interest the teachers by lectures?—They only gave one.

3242. But they gave a lecture for the purpose?—They gave a lecture and invited the head teachers to go to it.

3243. If you were going to introduce the same thing, say in Belfast, do you think it would be well to start by giving lectures there?—Yes; I certainly think that is the best way, and then get a teacher to teach the teachers.

3244. In this subject is there any jealousy of the special teachers amongst the other teachers?—None at all.

3245. The class payments don't go to the teachers?—No.

3246. If the payment for the classes went to the teachers would you not expect there would be a good deal of jealousy of having special teachers to teach class subjects?—I think there would be not only jealousy but the work would suffer; I don't think the teaching would be so efficient.

3247. In the 5th and 6th standards you have special teachers in the manual training?—Yes.

3248. If the teachers in the schools were paid by their class payments would they not object to special teachers coming in and getting some of the class payments that they could get if they were to teach it themselves?—I suppose they would; but I don't quite see how you could if the ordinary class teacher took the subject at the same expense, because you would want a separate set of tools for every class. When I first came, the Chairman wanted me to start in this way; he said, "You have got your centres, teach the class teachers, let the class teacher of every school take his children down to the workshop and use the tools; when he has finished he will clear out and the next class teacher will come in and occupy the same tools." I at once said: "Who is going to be responsible for the tools—I am not," and after a discussion we decided it was not practicable.

3249. But in all the lower class things, wire-work and cardboard, it is the ordinary teacher does that?—Yes.

3250. Could you draw any distinction between the manual training in primary schools and the proper business of a technical school?—Well, I should say a technical school was to teach a trade.

3251. Well, manual?—The primary school is to teach education, not a trade.

3252. Most Rev. Dr. WALSH.—That is, not to deal with the principles that apply specially to any particular trade, but with those principles that are of use in all trades?—Those principles of use in all trades, to work up from the principles for education sake and not for teaching a trade.

3253. Professor FITZGERALD.—You object to gum being used in the cardboard work, and you prefer sticking the things together with clinch pins; would gummed paper do?—Gummed paper is used, but there is still an objection to it; they don't care about the children licking it with their tongues, and if you have to have water about, sponges and so many other things must be given out.

3254. You think the little clinch pins are easier than gummed paper?—They are much easier, and there is no waiting for them to dry, and the whole work can be done in one lesson.

3255. Most Rev. Dr. WALSH.—And besides, there is some manual dexterity developed in the use of these little pins?—Yes.

3256. Professor FITZGERALD.—Do the same boys do metal work and wood work, or do they choose which they will do?—Those boys that are round the metal work centres must go to metal work. In one or two cases we have deviated where a parent has said, "My boy is going to be a carpenter," we have let him as an exception go away to the woodwork centre; the other boys in the school go to metal work; it is quite an exception, and we don't want many of them.

3257. In metal work they make articles and in the wood work only parts of articles?—You would scarcely call them articles, they are not useful, they are only for the sake of the design.

3258. But still it is a design that the child can understand the use of?—In the case of a spanner it is of use, but if you take a star or shield you could not call them articles.

3259. Is it not desirable that children should feel an interest in what they make?—They do that. Frequently the teacher has them down in the evening, and says, "Anyone that would like to come and do some work in the evening put up their hands," and out of a class of fifty you will not find ten keep their hands down.

3260. Do you find it induces the boys to make things at home?—If they have got the facility, but it is not often they have got the facility.

3261. Captain SHAW.—You mean they have not the facilities of vices and tools?—Yes. I have had cases of boys who came to me and said, "My father wants me to have a set of tools at home; would you mind ordering them for me." I have always been glad to do it. But these are rather better-to-do children than the average. In an ordinary house they have not got room to work.

3262. In the 5th and 6th standards wood work and metal work training, do you find the fact that they have passed through training in the 1st, 2nd and 3rd standards is of use to them? Are the ones that are already trained better than the ones you get when you first commenced, who had not been trained?—Certainly, we get great advantage from it and hope to get more, but the advantage we feel more than any other advantage is that they know they must be accurate. That is their ruling idea.

3263. But, as a matter of fact, you find that the training in the first three classes has been of use to the children when they came into the 5th and 6th classes?—Of considerable use.

3264. Most Rev. Dr. WALSH.—You cannot say whether it is found of use by the teachers in other subjects—making the pupils accurate, for instance, in their arithmetic or writing?—We only notice a difference from now to what we did three years ago. We started the manual before the hand and eye, and our first work in the manual is to teach them fractions, and we had to spend two lessons to teach them to read a rule. Now we never think of teaching them to read a rule. They have done so in the wire-work.

3265. Professor FITZGERALD.—Do you think the teacher of arithmetic finds that their having read a rule is of use to them in that subject?—I would prefer you would ask Mr. Robinson or Mr. Taylor that.

3266. Have you any experience whether the teachers that are trained in training colleges, or the pupil teachers who have not been trained in any training college, are more satisfactory as judged by this subject?—That is a question I am scarcely able to answer, because I don't inquire whether they are trained college teachers or not.

3267. This section of manual training has been to a large extent introduced into American schools. Do you know that?—Yes; I have heard about the American schools, but I don't know sufficiently about them. They are greatly in favour of manual training.

3268. You said something about its enabling the workmen who had been doing one thing to go to another thing afterwards, that is, if be knows the principles on which his work depends, he will be able to apply it to a number of different things?—That is it.

3269. And you think it is not only necessary to teach a person principles, but to give them experience of the application of principles?—Precisely so. They don't want to have any rule-of-thumb work.

3270. At the time when the spinning mules were introduced the hand-spinners were nearly all starving: if they had had technical training do you think the hand-spinners would have been the best persons to have employed on the mule-spinners?—I am afraid I could not answer that.

3271. When there is a change in a trade the people who are employed in the trade are very often thrown out of employment?—Yes.

3272. Because they are not able to change on to the new trade. Do you think if technical education was introduced generally, so that they knew the principles on which their trade depended, it would tend to mitigate that?—I should say it would.

3273. Mr. MOLLOY.—What is the total number of Board Schools in Birmingham?—Fifty-four.

3274. How many workshops?—Eight. That is not including the organised science schools—three metal and five wood.

3275. Who teaches drawing to the pupils who attend the workshops?—The ordinary teacher takes the drawing. It is supervised by the workshop teacher and by myself.

3276. Is there any instance where the workshop teacher teaches drawing and the work itself?—Not in Birmingham—outside Birmingham plenty.

3277. Then the ordinary teacher has a certificate in the drawing?—He usually attends the classes I have for the drawing and gets his certificate from myself, but it is not insisted upon.

3278. Up to what standard would female teachers carry on the kindergarten where pupils would not attend the workshop?—Up to the 3rd standard. We used to take it in the 4th standard, but the cooking and the needlework was quite sufficient, and we dropped it in the 4th standard. Now we only take it in the first three.

3279. If a female teacher had a certificate in kindergarten before entering on duty in a school in Birmingham, would you still subject that teacher to an examination?—Yes, they would all take it, because the schemes are different. She might be a good kindergarten teacher and not know the principles of the work that we have here.

3280. Rev. Dr. WILSON.—Do all the pupils learn to draw before they come to you—would you consider a pupil ineligible that had not learnt drawing?—You mean children. Of course they learn drawing in standard 1 quite apart from my work. That is compulsory in the boys' school.

3281. At what age do you take the children to your schools?—To the practical manual they go in standards 5 and 6, the lowest would be ten years old, eleven we usually get them, up to twelve and thirteen.

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3232. Are those eight centres so distributed over the town that all the parts of Birmingham are accommodated?—Yes.

3283. Are the pupils drawn from all the schools indiscriminately or only from the Board schools?—For the Board centres they are only drawn from the Board schools.

3284. There is no similar provision for the voluntary schools?—There is one centre for the voluntary schools which is entirely separate from the Board, and they take in as many schools as they can around their district.

3285. Professor FITZGERALD.—That is for Church schools?—For Church schools.

3286. Rev. Dr. WILSON.—You say some parents object: do their objections avail so as to secure exemption for their children from attendance?—Yes, usually; if they insist upon their not attending manual work it is granted, but they are very few.

3287. Otherwise all children at the Board schools beyond a fixed age are supposed to attend?—All the children in standards 5 and 6; there are a few in some schools that we have not sufficient room for that we cannot take.

3288. You have already answered to His Grace that £1,000 is granted from the Science and Art Department, but I have not exactly taken in from what other source the additional expense is drawn?—From the ordinary rates; you may say roughly that the hand and eye and practical work costs the town of Birmingham £700 a year.

3289. Most Rev. Dr. WALSH.—The whole thing?—The whole thing.

3290. Professor FITZGERALD.—And the grant from the Science and Art Department is?—£1,000.

3291. Mr. STRUTHERS.—You mean the £700 is over and above?——

The Rev. Dr. WILSON.—I think Birmingham gets very good value for its £1,700.

3292. Mr. REDINGTON.—To what extent is elementary science taught in the Board schools in Birmingham?—That is not under my supervision at all.

3293. You spoke of organised science schools; what are they?—If a boy after leaving the 6th standard wants to go on with his education he can attend one of these schools free of charge and go on to the 7th standard.

3294. I notice that in your schools where kindergarten is taught there is a very large number of children under one teacher. What is the maximum number that an average teacher is capable of instructing in this hand and eye work?—I don't think there should be more than fifty in any one class.

3295. But you have had up to sixty?—Yes; I quite admit we have some classes of sixty. We endeavour to keep them under sixty, but we have some classes with only forty-five. I think fifty is quite enough for any teacher to teach—I prefer forty-five.

3296. Captain SHAW.—In hand and eye training you teach incidentally also, you may say, arithmetic, geometry, and construction of sentences, in so far as the children have to answer in complete sentences?—We do.

3297. And to that extent you have teaching in the obligatory subjects?—Yes.

3298. You put metal work as an alternative with wood work—that is not usually done—but that is partly on account of the principal trade of Birmingham being metal work?—We had woodwork in the first three centres when I came; but when the other five centres were built I asked for three of those five to be metal work as I thought it would suit the district better, and the Board granted that, and we had three metal, and the other two wood, so we have now three metal and the other two wood. I may say we put the metal centres in those districts of the town in which most metal work is done.

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3299. In preparing their drawings for the workshop the children always have a model of what they are going to do before them?—They should. The model is always sent, and the teacher is supposed to use it, and in most cases they do: if you have a teacher new to the class, it takes a little time for him to get into the work.

3300. When you mention Church schools you mean Church of England schools?—I fancy they are only Church of England schools that attend that centre, but I am not quite certain about it.

3301. This centre would be provided by the voluntary contributions of the Church schools, that is the building and the equipment?—And by the grant from the Science and Art Department.

3302. What examination do you grant your certificate on in the hand and eye?—I always give an examination, and the Chairman of the School Management Committee sanctions the certificate. I give a certain amount of questions, and if they get 60 per cent. they get second class, and for 75 per cent. they get first class.

3303. Is the examination on practical work or principles?—Chiefly practical.

3304. Rev. Dr. Evans.—Are all the schools with which you are connected primary schools?—Yes.

3305. You mentioned fifty schools, are all those primary schools?—Yes.

3306. Are they all Board schools?—Yes.

3307. Is there any school connected with any dissenting body in your city?—No.

3308. We have been hearing of Church schools?—No, there is none at all.

3309. So that the children of Nonconformists attend the Board schools?—Yes.

3310 Are the managers of the schools favourable to the teaching of this manual instruction?—You mean the managers of voluntary schools?

3311. Well, where there are managers?—It seems so, for they have started a centre themselves

3312. You told us that the teachers at first had not been very favourable, but they have come round to be?—Yes.

3313. But you did not tell us anything about the managers?—I have nothing to do with the managers; I have simply to do with our Board.

3314. Captain Shaw.—Are there managers under the Board?—The managers under the Board certainly are in favour of it.

3315. Rev. Dr. Evans.—Were they at the start?—Well, I don't think unless the majority were in favour it would have been started.

3316. Most Rev. Dr. Walsh.—Is there a manager of a Board school as distinguished from the Board itself?—Oh, no; there is no manager of a school except the Board.

3317. Rev. Dr. Evans.—Now, will you describe the inspection of this work?—Do you wish me to describe it in each particular branch?

3318. I should like to know how the inspection is conducted. First of all, is it conducted by you?—For the Board it is conducted by me.

3319. Do Her Majesty's Inspectors examine in these subjects?—They inspect it.

3320. And they pass upon it?—Yes; they comment upon it.

3321. I mean are payments made upon the inspectors' reports?—Yes, where it is a class subject.

3322. Then there are not special inspectors like you all over the country?—No; it is only in the large Boards that they can afford a special inspector.

3323. Now do you think an inspector would be able to conduct examinations all over the country in this manual work—I mean an ordinary literary inspector?—Well, that is a rather difficult question to answer. Some would be quite able, but I think there are some that would not really see the drift of it.

3324. I want to ascertain what would be necessary to the success of manual instruction where it was introduced for the first time—whether we should require special inspectors, or whether the inspectors already appointed could take up this as well as their own work?—I have always thought that in a case of this kind there should be one special inspector for the work that could visit the various districts and see that the examinations and inspections of these districts are pretty well on a par.

3325. Is your system in Birmingham applicable to the whole country?—If they choose to adopt it; but they have a different system in London, and a different system in Liverpool. It is purely optional, there is no compulsion about it at all.

3326. Do you know how the cost of working of your system would compare with the cost of other systems in other parts of England?—I believe my system is considerably cheaper.

3327. I think you said that the schools in Birmingham cost £1,700?—For the whole of the manual work.

3328. That is about £30 a school, practically?—Yes.

3329. And it would take, you think, about £30 to have manual instruction carried on in connection with any school?—Yes.

3330. Most Rev. Dr. Walsh.—You have not told us how many pupils get the benefit of that £1,700, roughly speaking?—I should think 30,000.

3331. Professor Fitzgerald.—There are 400 pupils in each school?—But that is only for manual, hand and eye I understood was excluded from standard 1 to standard 6.

3332. Mr. Redington.—Could you give us the number of pupils undergoing hand and eye training, and the numbers in manual training, then the State aid in each case and the aid from the Board?—I could let you have it afterwards. The aid from the Government as regards hand and eye is only upon a class subject. For the last year we have only received it on two or three classes, not more.

3333. Could you make an estimate based on the numbers attending those schools?—That is provided everyone took it as a class subject—it would be a very difficult thing.

3334. If you take schools where it is taken as a class subject, could you make out for us what contribution is made by the State to those schools?——

Most Rev. Dr. Walsh.—I think it would be very useful to us if Mr. Bevis could kindly make out for us a complete statement on all these points.

3335. Professor Fitzgerald.—Could you find out how many children are taking it?—It is 1s. or 2s. per average attendance.

3336. Then if you know the number of children that are making the average attendance you could tell how much would come to them from the State?—I will try and get what I can on the point.

3337. Mr. Redington.—Distinguishing payments for hand and eye work from those for manual work?—Yes.

3338. Most Rev. Dr. Walsh.—Are the pupils of different schools brought at the same time to the centre for manual instruction?—No, all one school come at the same time; our classes are about 50 in each standard, and we split them in half and take 24 at one time, and they go back and another 24 are taken.

Mr. Edward R. Taylor, Head Master Birmingham Municipal School of Art, examined.

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Mr. Edward R. Taylor.

3339. Chairman.—You are the Head Master of the Birmingham Municipal School of Art?—Yes, my lord.

3340. Will you kindly give us your observations upon the teaching of drawing in the Birmingham Board schools placed under the supervision of the Birmingham School of Art?—The teaching of drawing in those schools was placed under the School of Art in 1888. This was effected by appointing three inspecting teachers who visited the schools, helped in the teaching, advised and reported to the Head Master of the school. I may say that the introduction of this system was preceded by a lecture by myself to the head teachers. Of course the amount of this supervision is limited by the Board's work under the Science and Art Department, and our aim is almost limited to minimising the result which comes of the fact that the staff in each school varies with regard to the qualifications in drawing, and also to preparing them better for the Government examinations. With regard to results during the first three years, the following statement by the Chairman of the School Board may be interesting:—"In November, 1888, there were 5 departments classed as excellent; in July, 1891, within the three years there were 24 classed as excellent. Classed as good, there were 19 in 1888, and 18 in 1891. Classed as fair, there were 11 in 1888, and in 1891 none."

3341. What is the plan adopted with regard to the appointment of masters and inspectors?—It is entirely in the hands of the Municipal School of Art.

3342. Has there been any new arrangement with regard to that matter, and, if so, what is the effect of it?—I am not aware of any new arrangement except, of course, that the area has been extended by the inclusion of other outlying districts in the city

3343. I think you made a report to the School Board which was sent to Mr. Acland?—In 1894 Mr. Acland asked me to show the newly appointed inspectors the art work that was being done in Birmingham, not only in the Board schools but in the School of Art and secondary schools, and as part of that work we visited several of the School Board schools; and on these visits I sent in a report which contains a number of suggestions as to how, even on the lines of the Department of Science and Art, the drawing might be improved where it was weak

3344. Could you tell us a little in detail what improvements you suggested?—For instance, in standards 1 and 2, and perhaps 3, I found there that the intention of the Department of Science and Art, as judged by its own syllabus, was that the children should be interested in acquiring a knowledge of simple right-lined figures, such as the triangle and its varieties, the square and the rectangle, and that this should be done by the teachers sketching roughly and rapidly these figures on the blackboard in every possible position, naming them, and the children as quickly and roughly drawing them on their slates. After that the Department required that they should be allowed or required to rule these figures, not to draw them geometrically, for which they were not then equal, but that the ruler should aid them in the straightness of the lines, but that the direction of the line and the knowledge of the figure itself should be determined by the eye of the children. I found in practice that partly, I am afraid, from the nature of the examination itself—I am not in this case blaming the teachers—the thing had been changed into a very mechanical system of teaching; for example, the square, either parallel with the sides of the slate or at an angle of 45 degrees with the slate, and that this lesson was repeated again and again during the year in view of the examination—that was one of the things I thought might be changed. In freehand there was too much dividing without any relation to the proportion of the figures; that is, dividing it into a series of squares which of course brings down the drawing to little more than map drawing, with the lines of latitude and longitude drawn on it. The insistence upon a bad type of line in order to make the drawing presentable for examination rather than a study, has evolved that defect, and the evidence of that defect being no real depreciation of the drawing. Too much use of india-rubber, and no attempt at teaching the drawing of lines at one sweep. Then that there was too much attention given by the teacher to completing the drawing on the blackboard. I was perhaps one of the earliest advocates of collective teaching as distinguished from individual teaching only, in drawing. But I found that very often the teacher's time was too much occupied in completing his drawing from a large example when the drawing properly developed before the class would have occupied very much less time, because he need not have more than half finished it. In the model drawing I found they were very much improved indeed, in fact I have very little doubt that this was the most successful part of the teaching, although the great difficulty caused by certain formulæ based on perspective rules being substituted for the children's eyes being trained how to see, still remained.

3345. That is drawing from the round?—Yes; the teaching has been too often turned into the carrying out of a series of rules instead of really teaching drawing at all. Then I gave suggestions with regard to the teaching of geometry, which, although it is more especially useful to the kind of work that Mr. Bevis undertakes, is still a part of our course—there I suggest that the teachers should more particularly use sketch plans on the blackboard, which are to be done by the children—figured sketches—sketches even out of proportion to make the children think; in fact, I may say that this is the weakness of all drawing teaching, there is so much apparatus, so many examples, so many copies which the teachers have, that the thinking is too often done for the children and the seeing, too, in the case of drawing.

3346. What drawing may reasonably be expected to be taught in every school?—Of course that must depend upon whether the teacher has any knowledge of drawing at all except so far as you limit it to drawing by mechanical aid. There is no doubt that in every school a great deal of intelligent scale drawing may be done with a degree of accuracy which would have to be tested by some different method to the ordinary individual examination—accuracy of thought and accuracy of doing. Beyond that, it becomes a very difficult question because of the varying qualifications of the teachers, and I am afraid that the certificate is no sound basis to go upon with regard to the qualification of the teacher. In order to obtain a certificate they are not asked to give any evidence of their power of teaching the subject or of their intelligent knowledge of it, and drawing with regard to method may be done in a bad way; but it may be so done as that a fair copy is made, and thus the teacher gets through the examination.

3347. What training do the teachers have in drawing?—They have a training at their training colleges, and that will vary very much to begin with.

3348. I understand by the word "training" that they are not merely trained to draw but trained to teach drawing?—I don't know about the training to teach; I don't think it is part of the training college system; they teach them to get through their examination, and there you hit on one of the weak points of the system.

3349. There is no means of testing whether they are capable of teaching drawing?—I don't think it is possible at all. In freehand a copy is put before them and they have to copy it; in model drawing they have to copy a model and for a certain percentage they get their certificate.

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3350. Captain SHAW.—They do some blackboard drawing which is not included in the certificate?—Yes, but that is simply doing the same thing on a larger scale.

3351. CHAIRMAN.—Have you any remarks to make on Vere Foster's books?—I only saw them the other day; some of them are very useful indeed in a school, very well drawn and made fairly interesting. I shall be very glad, indeed, when I see the whole set to point out to your Commission those that I think might be retained in a school.

3352. Following on the question I asked you about what drawing might reasonably be expected to be taught in every school, what would you say as regards drawing in infant schools?—I think the best of drawing is taught in a good infants' school; a good deal of this and a great deal of the preliminary hand and eye training naturally follows upon the good teaching on the kindergarten principle, but the practice is not always right in the kindergarten. For instance what I suggested just now with regard to children being allowed to draw freely without too much fear of going wrong, so as to get the characteristics of shape, the different kinds of triangles, the square and the rectangle, that could easily be done in an infant school. Then I would for instance take and let them cut this out of paper, in four or five thicknesses of paper at once; thus getting the same shape repeated and letting them place these in different positions.

3353. Does that apply to both geometrical and freehand?—This is freehand, so as to get a concrete notion of geometrical shapes. I don't think infant schools should be troubled with geometrical drawing at all.

3354. I understand you mean by geometrical drawing, drawing with a ruler?—Drawing with a scale might possibly be introduced into infant schools in the higher standard without any danger. The knowledge of an inch as a portion of a foot, and by being taught to measure their school-rooms, a very intelligent lesson without any expense to your schools might be made; I know it is possible because I have tried it, but I would avoid requiring the use of such a delicate instrument as a pair of compasses.

3355. What is flat-washing?—To lead up to that I have a suggestion to make. I scarcely knew the purpose of your inquiry, but as I have been lately informed that the teachers in Ireland have very little knowledge of drawing—I don't know whether this is right or no—I thought out in my own mind what would be possible without danger of going wrong, because there is very little doubt that a great deal of the teaching of drawing in some of the schools is more hurtful than useful. If things are required which have to be undone they take longer to do. The first lessons should be drawn largely on a slate. I would begin to exercise their hand chiefly. This at present is exercised in an extremely difficult way—drawing a straight line. Give them a little freedom by asking them to mark the centre of each slate, and round this point a little circle, gradually enlarging these circles as the teacher saw power was being gained. Insist that the children should hold their slates well in front of them on their knees, and not on a table, but resting against it, nearly upright, so that they shall sit up well. Then a definite knowledge may be given of such words as parallel, vertical, horizontal, slanting, perpendicular, and angles, all sketched freely by the teacher on the blackboard; by this means the teacher is also teaching himself drawing as well. A next step might be drawing these shapes to definite sizes by the protractor. Then I would suggest to develop this, and to teach not only drawing but art, that is the harmonious arrangement and enrichment of lines, and for that purpose nothing more would be required than that the child should know how to use a ruler with inches marked on it. Dividing the top of his slate in the middle, and from that he draws with his ruler straight lines down to the two lower corners, forming three triangles of differing character. Finding the centre, he begins to decorate, either by tinting it with lines, or doubling the lines enriching it immensely at once; the child thus begins freehand with the guidance of the straight-line form which he has ruled.

3356. Most Rev. Dr WALSH.—The second line would not be drawn with a ruler?—No. Then the thing might be enriched further by tinting by means of lines drawn in freehand, so as to give a tone to it; all this any teacher might teach. Here are further developments of the same thing (*design shown*). The main object being to train the hand as the natural means of expression, and yet train the eye somewhat. As more power is gained by drawing lines parallel and the small circles, these circles should be gradually increased in size. The next lesson would require something from the teacher in the way of drawing; instead of these being straight lines as in the previous exercise, let him draw a curve.

3357. Still on the slate?—Still on the slate, then the double lines at once give you this form (*design shown*), then the tinting of that gives you something more to interest the child. I think I might fairly say the average of teachers could teach that without any danger

3358. Those teachers, I suppose, that are fit to teach anything?—If they cannot teach this they show their unfitness to be teachers: here is the same thing with the upper and lower edge divided (*design shown*).

3359. CHAIRMAN.—These are like the windows of a church?—They at once become windows the moment you double the lines (*design shown*). In a little book published by Macmillan I have developed this idea; it is pattern-drawing really.

3360. Most Rev. Dr. WALSH.—Kindly tell us the name of the book?—"Drawing and Design for Beginners, by Edward R. Taylor Macmillan." There is nothing more in the examples I have named than what a child can draw easily. The best children, the children that do it well, could draw this on their paper on a small scale

3361. To make it fully intelligible on the notes, kindly give us the number of the plate in that book?—Plate XXIII. Of course in all this work when afterwards drawn on paper all straight lines would be ruled so as to get a base of accuracy on which to make a freehand drawing

3362. Professor FITZGERALD.—You do not propose that the bent lines should be made with a compass?—Oh, no, freehand, it is the most natural thing for a child to do, a curved line is easier for a child to do than a straight line Of course in all this work I would also exercise the memory. Let the first five minutes of the next lesson or the last five minutes of the lesson be a memory drawing. The memory is soon exhausted, that is why I say not more than five minutes. I think the difficulty would be less for the lower portion of the school; it could be fairly well taught by every teacher even to infants.

3363. Most Rev. Dr. WALSH.—You would not require any special certificate from a teacher to qualify him to teach that?—No, I think not, I don't think the children would learn much that was wrong. Then there is one thing it is very desirable to be taught, which for the first year you might allow to be optional and then taught in every school in which the teacher has your qualification; that is, that the teacher should draw on the blackboard some simple leaf, bird, flower, or fruit form, but of course that must be optional, you cannot require it, but it is very desirable in the development of any system of the teaching of drawing that you should let an opportunity be given for it. Then I thought perhaps the upper portion of the school could take the following: the construction of a triangle, of the square and rectangle when the sides are given, leaving all the rest of the geometry for future years or higher classes. They thus have the freehand combined with the ruler, and also the exact geometrical work of these three figures, and if to all the

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children of Ireland we could give a knowledge of these in the first year with no confusion between the words vertical and perpendicular, triangle, &c., but if those words could call up to their minds a vivid notion of the figures in every case, it is education as well as drawing. Then in each of the figures I would link the freehand with the geometry, in each of them put in the little circle, if nothing more, or any arrangement of curved lines that suggested itself to the pupils. Then of course they can do the cutting out of the paper of these exact geometrical forms, and arrange on dark paper the light shapes and thus get pleasing designs. Then here is a drawing in this book ("Elementary Art Teaching," by E. R. Taylor. Chapman and Hall), it is plate XLIV., opposite page 122, the lower portion. It is a means of evolving lines of varied curvature from straight lines on objects circular in plan; you draw on the plan straight lines, and by means of four or five points you get the curves absolutely correctly developed. I think you will all see the importance of this as conveying the idea of a curved surface to the child. This can be done by every teacher, I don't ask him to learn the geometry that leads up to it, it is really an application of solid geometry to the development of contour; of course the children could very easily enrich these, and thus you get another geometrical base on which to build designed freehand work, and it will teach them art as well as drawing. I draw a distinction between these two. You may teach a child how to draw, and you may teach him no art, or you may begin to teach art concurrently from the first; I think you will quite understand what I mean when I say that it is possible for a child to draw maps very correctly, but that does not teach him much drawing, and it teaches him no art. In the same way he may be always going on drawing from copies without knowing in the least what is a good line, what is a good combination of lines, what is good colour, and what is bad colour. Of course, then, I think, as I said, that some of the Vere Foster drawing books might be used by the pupils with moderate safety even where the teachers were not trained, the style of work in these books is not bad, though in certain cases it is rather too difficult. Then I would ignore all questions of colour work, with chalks even, except to show things in a diagram; but I would at once begin with flat-washing.

3364. CHAIRMAN.—What do you call flat-washing?—Teaching the child to use a brush, to see and use colour. If the Commissioners will look at this form I sketched here (*design shown*), you see great possibilities for a child to learn colour and the method of laying on the flat-wash, which is so essential for all art; and the method of teaching it could be taught to every teacher, even by correspondence, but you can see at once that if a child is taught to lay on a flat-wash with not too much insistence on the mechanical accuracy of the flat-wash, if he puts a certain colour on any of the tinted portions, then over the whole, supposing it is a blue, he puts yellow, at once he sees he has changed the blue into a green, and in the same way with all the primary colours; and with a child this is learning hand and eye training. Mr. Bevis has explained the scientific side, but this is the artistic side. May I say with regard to the expense, it would be only a few shillings for each school; the colours can be had by the ton, if you require them, and the brushes will cost perhaps not ½*d.* or 1*d.* each. I have left out all model drawing; I think for model drawing, or light and shade, you should have a most rigid test of the power of your teacher before you allow him to teach, but if you started with the above, and at the end of the first year you have voluntary examinations of teachers, and according to the result of that examination you allow a teacher to extend his teaching, you will avoid the mistake made in England of requiring drawing to be taught in all schools whether the teacher is qualified or not.

3365. Professor FITZGERALD.—What sort of an examination do you mean?—That would require some thinking over; it is possible to have what would not be merely an examination in making a model drawing, it would be something more.

3366. You would have an inspection of their methods of teaching?—I think that could be done by means of written papers. I don't think it would require that they must come to centres and be examined personally. Of course, it would be very much more reliable. You have a centre at Dublin where an old fellow-student of mine is head master of the School of Art. An old student from here is head master at Cork, and an old Birmingham student, before my time, is head master at Belfast. There you have centres.

3367. Most Rev. Dr. WALSH.—Do you mean Mr. Brenan of Dublin?—Yes.

3368. CHAIRMAN.—I have the heads of a memorandum of yours here. I have on it "examination of teachers." That is what you have been speaking about?—Yes.

3369. Then I have also got "examination in drawing." Does that mean an examination of the drawing of the children?—The examination of the drawing of the children. I would be very glad, indeed, to give details—this is only a very rough memorandum. I would be very glad to give details upon any point mentioned here. But this examination of drawing, so far as I have indicated it, at all events the first portion—the second might be done by paper work and sent to experts—could be done by any ordinary examiner. I mean to say you would not require special examiners all over the country.

3370. You mean the Inspectors of National Schools could take both the examination of drawing and the examination of the teachers?—Not the examination of the teachers. That would be a thing to be thought out very carefully; but the examiners could conduct the examination at which teachers voluntarily presented themselves, the work done being sent to experts.

3371. Rev. Dr. EVANS.—Who conducts the examination in drawing in the training colleges?—The Science and Art Department.

3372. Captain SHAW.—It is not an oral examination?—No; it is only an examination the same as a pupil's examination.

3373. Rev. Dr. EVANS.—I refer to the testing of the qualifications on which the certificate is given—in other words, who vouchers that the candidate should receive a Certificate?—The Science and Art Department.

3374. Professor FITZGERALD.—They make no special arrangement for teachers. The certificate is given to everybody all over the country just the same way, whether they are going to be teachers or no?—That is the case.

3375. CHAIRMAN.—Then there is one other head—manual work—which you make some observations upon—carpentry, plaster-casting; then brass, repoussé, needlework, and leather work?—These naturally tend towards art expression. Nothing can beat carpentry as a basis for science and art, if you can afford it, but of course it is expensive. I have two or three other ideas which occur to me, and I have brought some samples of them. The difficulty is to find something which shall be inexpensive, which can be taught by the teacher, and which can be taken by the child without any risk in the use of tools that are dangerous. This is simply thin metal work (*produced*). This can be easily taught by the teacher to the child—that is, let the teacher have a design at first until the pupil can produce a simple design of his own. All that is required is a piece of brass. This would cost 2*d.* It is very thin brass backed up by means of plaster. It has all the qualities of expensive repoussé work, and you see the child can begin at once to apply its knowledge. This (*produced*) is another illustration of drawing on leather.

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3376. Professor FITZGERALD.—Is poker work expensive?—This is poker work on leather, but I would not allow the children to cut the leather. I consider leather work left like this is more like leather work than the work which is incised in imitation of woodcarving.

3377. Do they do that metal work at Kendal?—Yes; but they do the repoussé work, too. This is repoussé on very thin metal. The other has to be hammered out.

3378. Captain SHAW.—Who are the students who are doing this work?—This book-cover is done by a boy at work for a saddler. This is done by pressure with a bone tool. Done by the eye, and designed by the student.

3379. CHAIRMAN.—Did he do the brass work as well?—Yes; that is simply thin brass work. The repoussé is extremely difficult to teach. I could not recommend it.

3380 What would the material cost that is in that?—The leather would be the most expensive item You could have cheap leather or dear leather, either pig-skin or ordinary calf. I spoke of that first because I thought that might be safely introduced. Then the other one is wood work (*panel produced*). It does not involve the same amount of tools that even carpentry does, and the almost prohibitive woodcarving. You can see from this simple handling of one tool, the V tool, that it is hand and eye and art training at the same time. The panel has been first stained with ordinary paint and rubbed off.

3381. Professor FITZGERALD.—Your criticism of the carving is that it requires too great a variety of tools?—Yes, and too much art to know when it is right and when it is wrong than you can reasonably expect from any teacher.

3382. CHAIRMAN.—Do you paint it first?—Yes.

3383. Mr. REMINGTON.—Was this done at the School of Art?—Those are all from the School of Art. They are quite new ideas for elementary schools. Then another, which has a very artistic tendency, and which has never been tried except with School of Art pupils, is plaster-casting. That would be very inexpensive.

3384. Professor FITZGERALD.—Clay modelling?—Oh, no; not clay modelling, please. It requires too much art in this respect; it is exactly the same with regard to wood-carving. Let them play with clay in the kindergarten, but you will at once see that the moment you are dealing with clay as a means of art teaching you are dealing with all the essentials of the figure of three dimensions, and of an infinite variety of these dimensions. Here you are dealing with lines and mass in their simplicity. If you should be fortunate enough to get a teacher in your elementary schools, and I think it might be possible in the near future, who does know modelling, let him take modelling.

3385. Mr. STRUTHERS.—Have you seen any clay modelling done successfully?—I cannot say that I have not seen clay modelling done successfully, but I have seen none that has given educational results that much less work would not have done. With regard to the plaster-casting it would require little expense. A little plaster—a corner of the room—you might teach the child the simple casting of objects which can be drawn up from the mould at once, and he may obtain many replicas for himself or his school. You may further teach a child to cast a vase in two parts—part moulding—and possibly teach him waste moulding, getting a complicated thing, putting plaster on it and gradually chipping it off. Part of the things might be natural forms—a leaf, a shell—all done by the children and spread over your schools as examples for lessons at no cost, except the plaster, which is £2 or £3 a ton.

3386. Captain SHAW.—Is not plaster-casting too difficult an operation to get successful results?—Oh, dear, no; it could be taught much more simply than the carpentry could be taught.

3387. I have been asked in a first-class school of art if they could get instructions how to cast their models, because they have always broken them in casting?—Those models are not what you would start with here: when they have to deal with the human figure in full relief, or a cockerel, which has to be moulded with all the feathers, it is different.

3388. Professor FITZGERALD.—Would you only propose flat plaques at first?—Yes, and then, say, the fruit of the acorn taken in two with a piece mould.

3389. Would you make the original moulds off the natural objects?—Yes.

3390. Mr. STRUTHERS.—You would cast from an actual acorn or apple?—Yes, but not beginning with these.

3391. CHAIRMAN.—Have you anything you wish to say with regard to needlework?—For girls, of course. I think if you could revive needlework in Ireland—of course you know that in lace it has a great standing, and then the old illuminations of Ireland, of course, are princely—they stand the highest of all. The sampler of our great grandmothers has been done in Ireland as well as in England. If you could hark back to the sampler, instead of doing woodwork with a V tool, let the girls do needlework—beautifully done—let them do it in lines; I don't mean expensive or elaborate work, it may be done even in coarse worsted.

3392 Professor FITZGERALD—Would you require the child to draw it first?—I assume that in all this it should run parallel, or rather, the drawing book should have a little precedence; but don't wait until the child is an artist before you let him do this.

3393. Most Rev. Dr. WALSH.—Would you allow the child to do any of these things without having first drawn them?—Oh, yes, certainly I would. I would let them be going on concurrently drawing similar things in order to get the interest; I would let him see how beautiful a thing he can reproduce. Might I say with regard to design in our own School of Art, we have adopted for many years this system. Instead of waiting until the pupils can draw the figure before they are allowed to design, we begin at the very first. As soon as the pupils can draw lines they are allowed to make designs, and the result has been, in one direction alone, that there is what Mr. Walter Crane has termed the Birmingham School of Book Decoration, and it has arisen from this fact that, instead of waiting until they are perfect in relief in light and shade, perfect in tone, perfect in colour; they begin design early; those books are, many of them, children's books. The things are done merely in line. When a student joins, if he can do nothing at all in the way of drawing, or if he has learned a little, it matters not, he takes the freehand one night—I am talking of the typical evening student—he takes freehand one night, model drawing the next, and the third night he takes design, and, on a design night, for the first hour, there is a talk by the teacher and a good deal of drawing on the blackboard. These drawings are copied by the pupils, but I give instructions to the teachers not to take more than an hour; the second hour a subject is given, upon which the lecture has borne, and, within an hour, these fifty or sixty designs are collected and brought in for me to revise and send back to the student again. That is what I want to see, if possible, introduced into Board schools. The Cods and other things stand in the way at present; they are doing good work, but this is simply another kind of work.

3394. Rev. Dr. EVANS.—Is drawing taught in all the Board schools in Birmingham?—In all the Board schools.

3395. By whom is it taught?—It is taught by the teachers under the supervision of these inspecting teachers who are draughtsmen, painters, and designers.

3396. Mr. STRUTHERS.—But for the most part to boys?—Not to girls, I am sorry to say.

3397. Rev. Dr. EVANS.—Who teaches the girls?—It is not taught at all. We also teach the pupil teachers drawing at the pupil teachers' centre, and when they come direct from the Board schools it is a very singular psychological fact that the evidence they frequently give is that their observing power is not equal to what it was when they were six or seven years of age.

3398. Are all the teachers in the Board schools capable of teaching drawing?—More or less; of course, as I have said just now, there is great inequality.

3399. But are they all in possession of a certificate?—There are certain to be in every Board school one or more who have certificates.

3400. From whom did that certificate come?—From the Science and Art Department.

3401. Were they all trained in training colleges?—Yes, I think so.

3402. Do you know what training colleges they have been trained in?—I think they draw them from all parts of the country.

3403. Captain SHAW.—A great many teachers are qualified by going to a School of Art and other places to get certificates after leaving the training colleges?—Yes, but in small numbers; they are increasing in Birmingham now, particularly among the female teachers.

3404. Rev. Dr. EVANS.—You told us that the certificate was insufficient?—As a proof of competence to teach the subject.

3405. Is the certificate of the Science and Art Department in your opinion insufficient as a qualification?—For the teaching of drawing certainly, especially the second-class certificate of the Science and Art Department.

3406. CHAIRMAN.—Would it be possible to test a teacher to show first of all that he could draw, and secondly, having ascertained that he could draw, could you test him further to find out that he could teach drawing?—I think it would be quite possible. For example, if the examination for teachers required not only a finished drawing, but also one in the middle stage towards completion, this would be one means.

3407. Captain SHAW.—Do you propose to impose more tests than the Science and Art Department already have for the certificate?—Rather different tests, certainly not more severe with regard to drawing.

3408. You think the drawing test itself is already sufficiently severe?—The test itself, the subject given in both freehand and model, and the subjects in geometry are quite advanced enough.

3409. Rev. Dr. EVANS.—Some of these teachers have obtained certificates as the result of the instruction they got in your schools?—Oh, yes.

3410. And do you believe that the certificates in the case of students who are trained Queen's scholars in your school are insufficient?—We have no trained Queen's scholars in our school.

3411. I thought Queen's scholars who had come from the training colleges went to your school?—Some of them continue their drawing with us, but very few.

3412. As I understand, when they come from the training colleges they would not be competent, all of them?—From the teaching point of view.

3413. They would not be competent to teach drawing?—Because they have not had the same training in drawing as in other subjects.

3414. And it is after they have left the training college and come to you that they are certificated?—A few, but they only come to us as teachers in the Board schools.

3415. CHAIRMAN.—You say you teach drawing to teachers, but do you teach the teachers to teach?—There again we are limited by the Department regulations.

3416. Is there any system in your school by which you can teach the teachers to teach drawing?—In this way—we teach them drawing in such a way we hope that if they watch the way in which the teaching is done they themselves will learn how to teach.

3417. Rev. Dr. EVANS.—Do you consider that a special teacher of drawing is required in connection with a group of schools—take, say the Board schools of Birmingham or any other group of schools?—Yes, on the ground that you get a higher expert dealing with the subject.

3418. Does that system obtain throughout this country?—No.

3419. So the teaching of drawing is done in the schools by the Board teachers?—Yes; Birmingham, London, and one or two other places, are exceptions.

3420. What is the cost of drawing in Birmingham?—The cost of our supervision was about £300; it may be more now since additions were made to the city, but I will give you the exact particulars.

3421. Could you make out a memorandum that may be sent in?—Yes, but then that is balanced; for against that £300 there is to be put the Government grant, so practically for our teaching it will almost be found that it costs the city nothing.

3422. How much of this money comes from the Science and Art Department?—That I must get from the School Board.

3423. Captain SHAW.—Do you know Mr. Bevis' system of paper-folding?—Yes.

3424. Do you not think the drawing which is implied in that is sufficient for the first standard and is more intelligent?—I know of it, but I am not sufficiently cognizant what drawing is required.

3425. They change the shape of paper by folding it in different directions, and the children copy the shape so folded?—Very good, indeed.

3426. As regards model drawing, you think it is impossible to teach that in the ordinary schools unless you have a very fully qualified teacher?—You have to face this difficulty, exactly the same power that is required to execute a picture by Watts is expected from those who teach model drawing, the only difference being in refinement.

3427. I might put it shortly, the aim of teaching drawing should be to copy flat copies in proper proportion, and with good lines?—Yes, and by teaching combination of lines, teaching also mass by means of flat tinting with line or with brushwork.

3428. And that, with geometrical and scale drawing, is as far as you think that a teacher himself could go unless he was an artist?—Unless you have some evidence of his artistic ability. I should say I don't wish in the least for the Commission to think that my opinion is that that is the limitation of all the teachers; I am only assuming that as the limitation where there is no test whatever of the teacher's power.

3429. CHAIRMAN.—There is no test practically?—No; but in the meantime the working tests your teachers.

3430. Captain SHAW.—In the case of model drawing being taught, you would object to its being taught on perspective principles?—Yes, they are misleading, they are confusing, they are elaborate, and they are all wrong when applied; you have not the data at hand.

3431. Then perspective is not necessary for the training of teachers?—It is not necessary; it is going out now in the Department course; it has been removed from the school teacher's certificate.

3432. Professor FITZGERALD.—You consider that codes are bad: would you like the same sort of system in art training as there is at present in manual instruction?—There is where Mr. Bevis has the advantage of us; we could have done very much more. We had to try to modify or specialise for this a district and the higher teaching of our Board schools a system which has been framed for the whole country.

3433. But you think it would be better if there were not any definite systems framed?—I would not quite say that because then I should be ignoring the good that has been done all over the country, but

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it makes it difficult of course to bring about changes. The teachers think: "Well, we shall not get the same grant if we do this, and we have got to get the Code grant."

3434. How large a district can one person superintend?—Our teachers take fifty-four schools and we have three or four of them; fifty-four schools with several departments in each school.

3435. Then you think seventeen schools to twenty is as much as one organizer can take?—Yes, you see the Birmingham schools are very large schools. I should not take that limit; it depends very much on local circumstances, but it would be wiser to begin with smaller numbers rather than large.

3436. When men and women teachers come to you in the Art classes do you find that the men have been benefited by the teaching they have received in drawing in their schools as boys?—Oh, certainly; there is an improvement now, only still there is a great deal to unlearn, and it is that I would try to avoid; but there is no doubt that the effect of the teaching in the Board schools in Birmingham is good; For instance, with regard to freehand drawing a number come fairly well qualified to take up an advanced course.

3437. But do you find that the boys are better than the girls on account of having had that training?—Certainly.

3438. Do you think that special training in the method of teaching would be desirable for the teachers?—Very desirable, only I am afraid of making it into a method.

3439. I mean as to the principles underlying the method?—Yes.

3440. Do you think that a person who is being taught can discover the methods of his teacher satisfactorily?—An intelligent pupil teacher ought to be able to discover it

3441. That is the only method?—The criticism lesson is a very unfair substitute.

3442. If you have got a good teacher and a good criticism lesson you think the criticism lesson enables them to think over the principles; it always seems to me that you can no more learn to teach by observing a teacher than you can learn to be a doctor by watching a doctor?—Ah, it is not analogous quite; he keeps his secrets, the teacher always exposes his hand.

3443. You think that the present courses are wanting in encouraging inventiveness?—Yes, and elasticity.

3444. Do you think that power of inventing designs is easily developed in children?—Oh, yes, as common as the power to read.

3445. You think that power of original designing can be developed?—Yes, very largely. I may quote Carlyle perhaps. Carlyle once said that he would have every boy and girl taught to draw before he was taught to read.

3446. You have had a great deal more experience of what can be taught to children than Carlyle had, and therefore I think your opinion would be very much more valuable than Carlyle's. You think that the children's ability to design can be cultivated by encouraging their inventiveness when they are young?—Yes, and all the more so the younger they begin. The child of fourteen who has not learned drawing is at a disadvantage in actual work as compared with a child of seven or eight.

3447. You think that he has been given bad habits in fact?—His power of doing things is getting reserved, the child is more open, and really some of the inventions of very young children might be useful to decorative artists.

3448. His power of invention is atrophied from not being used?—Yes, and warped into certain directions by his surroundings.

3449. Most Rev. Dr. WALSH.—Will you explain the connection between the Board schools and your School of Art?—They pay our Committee a certain sum annually for the supervision of the teaching in the School Board centres, and also for the teaching once a week of the pupil teachers in the centres.

3450. I understand that that connection has been found very useful for the teaching of drawing?—Very useful.

3451. Do you not also assist them by inspection?—They are called inspecting teachers, they take their share in the teaching, and they are also inspectors.

3452. I understand you have three of these inspecting teachers in Birmingham?—We have three.

3453. Do they teach in Board Schools also?—Yes.

3454. And each inspects one-third of the Board Schools in Birmingham?—Yes.

3455. Where do the funds come from for all this?—As I said just now, the £300 a year would almost have come from the Science and Art Department in the large number of "excellents" that were obtained.

3456. The Science and Art Department pays its grant directly to the School Board?—Yes.

3457. Out of that the School Board has to pay the teachers to provide the materials, and also bear the incidental expenses of this work in the school?—Exactly.

3458. In a very valuable memorandum we have before us, it is stated that in some counties, the County Councils have instituted Saturday classes for training teachers, is there anything of that in this neighbourhood?—In this neighbourhood there is; for instance, one of my former pupils, a master at Stafford, is engaged for the County Council part of his time, and there are several others in the neighbourhood who are also employed.

3459. Do you know out of what particular fund the County Council pays for this teaching?—Out of the whiskey money.

3460. That is the money that goes for teaching Greek and Italian in Ireland. Kindly describe for us the method of inspection in drawing in the Birmingham schools, first, on the part of your three inspecting teachers, and, secondly, on the part of Her Majesty's Inspectors?—With regard to our own teachers, the inspection is that they are there during the whole of the lesson given, sometimes taking a lesson themselves, and helping in arranging the model, also in directing and advising the teachers; only all this I say is hampered by the fact that we had come in to try to improve an existing state of things.

3461. But still it is done?—It is done, and it is great good.

3462. Secondly, the School inspectors—the Government inspectors?—The Government inspections—ah, well, I have never been at one as now conducted; I don't know what they do.

3463. They don't hold result examinations and regulate the payment by the drawing of each individual child?

Captain SHAW.—It is not exactly that.

Witness.—No, I know it now; if the class as a whole is up to a certain mark, taken as it were by sample.

3464. Most Rev. Dr. WALSH.—And they test that by getting the children to do some drawing?—Yes.

3465. Do they not also ask the teacher to give a lesson in their presence?—I don't know that it has been done.

Captain SHAW.—It is given always in the 1st and 2nd standards.

3466. Most Rev. Dr. WALSH.—And they also examine, to a certain extent, the work that has been done in the school during the preceding week or month—do they not form their judgment then on the result of these three forms of inspection?—Not quite; are not some of the works sent to London to be examined?

3467. My impression is that in standards 1 to 3 the inspector forms the judgment and gives the award, but in standards 4 to 7 the work has to be sent to South Kensington?—That is so.

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3468. And the payment to the school will depend on whether the result is fair, or good, or excellent, as the case may be?—Yes.

3469. You spoke of plaster-casting—I observed that in your local art school you have foreigners superintending that work?—They are the only experts we could get in the place.

3470. There is no local jealousy aroused by your bringing in foreigners to do that work?—I don't know of any.

3471. It is not said that you are discouraging local art by bringing in foreigners?—There is no art in this; I have never heard that there was any jealousy.

3472. Under the Science and Art Department there is an alternative programme for drawing, is there not?—It is not adopted in Birmingham, but it is rather on the lines I suggest.

3473. It is a special programme for small schools—are there any of those in Birmingham?—No.

3474. By a small school is understood, in England, a school below sixty?—We have none of them.

3475. Chairman.—There is one question I should like to put to you· I should like to ask you for your opinion on a practical point we have had before us in Dublin. As you are aware the great bulk of the Irish schools are small rural schools, and the question has arisen whether it would be better and more practical if a teacher of drawing were appointed to reside in a centre, where he should endeavour to form a group of schools, which he should personally visit once a week; or whether it would be better that he should confine himself to giving lectures to teachers in the centre where he resided, and not attempt to teach the group of schools, mainly on the ground of the enormous number of teachers that would be required to cover rural Ireland—what would be your opinion from your English experience as regards that; would it be better that the teacher of drawing should confine himself to teaching teachers, or that he should attempt to cover a certain ring round his place of residence, visiting, say one or two schools a day, according to distance?—In the first place, I should say the most economical way would be to appoint him to teach the teachers until they acquired a fair power of drawing, and to teach them also the methods of teaching.

3476. And not to attempt to go to the schools and teach the pupils?—No, that should be the first thing, to teach the teachers.

3477. Most Rev. Dr. Walsh.—But very little teaching of the teachers would be required for what you have described as the beginning of the work?—Yes, but while you are sowing this seed you should have some provision made for the higher teaching.

3478. What you suggest would enable the work to be commenced at once—it would enable the foundation to be well laid for the whole work of the school?—Yes.

3479. And the teacher would be constantly improving his own power of drawing?—You will have a certain minority who cannot go much further; you can, however, begin with them, it will start the work universally.

3480. Mr. Redington.—In addition to teaching the teachers in centres, would you advocate the inspectors going round to the different schools and advising the teachers?—Yes; but the other would be in the beginning the major portion of his work.

3481. Most Rev. Dr. Walsh.—I suppose some useful instruction, preparing the teachers to work on the rudimentary line that you suggest, could be given to them by correspondence?—Yes, or get them to read books. In connection with the larger book of mine there was a remarkable instance. I had to examine a school, and I pointed out certain things that were wrong. The head master knew nothing of the subject, and after appealing to his teachers they said, "That is just what Mr. Taylor advocated in his book." They had seen my examples and had not read what I said about them; in the same page I showed the wrong and the right, and the half right.

3482. And that was precisely what you had cautioned them against doing?—Yes, and this example that was wrong was from that very same school some years before.

3483. Mr Struthers.—What number of children are usually taken together for a drawing lesson in standard 2?—From 50 to 100.

3484. In model drawing in standard 4 or 5 would you still have 50 children?—I could take 50 or 60; I think an average of 30 or 40 would be sufficient.

3485. But an average teacher would do better with 20 children in one lesson than 40 children in two?—Yes.

Mr. George H. Robinson, Head Master, Rea-street Board School, Birmingham, examined.

Mr. George H Robinson.

3436. Chairman.—I believe you are the Head Master of the Rea-street South Board School?—Yes, my lord.

3437. Will you give us your experience of hand and eye training?—I think, my lord, that the effect on the children, in the first instance, is that it makes them more alert; that is the great thing, I should think. After going through the course for three or four years there is a feeling of alertness produced. In the next place, I am quite sure it makes them more intelligent; they have to look at the board to see the drawing that is placed there, then they have to think what they shall do, and then do it. There is no guess work about it; it is entirely a training of the intelligence; it cultivates the power of rapid observation; they are not kept a long time looking at the drawing; they look at the drawing for a fair time, and then pass on, so that if they cannot observe quickly they get lost. Then it makes the children attach great importance from the first to exactness. Many children without this training think that half an inch is of little importance in anything they do; but they are taught it is exceedingly important, because in the fifth and sixth standards they work to one-sixteenth of an inch.

3488. How do they measure, by means of a scale—with the finger or by compasses?—We commence with the ruler in the third standard in wire-work, and in the fourth, fifth and sixth standards they work with a scale of half an inch or three-quarters of an inch to the foot, or to some other simple scale.

3489. I meant more in the way of measuring. Do they measure by the eye, or having a graded ruler?—They have graded rulers usually, but in the matter of wire work, it is more judged by the eye.

3490. I think I noticed that they had some rulers?—In many of the copies the dimensions are given, and a piece of wire is to be a certain length. I think another great advantage is that the children are taught to read drawings, both of plan and elevation from the very first. Drawing is like music, an universal language. They are taught from the beginning to work from drawings. Of course, I admit they are chiefly plain drawings except in the sixth standard; and then every child who has gone through this course can use a scale well and work to any ordinary scale. Then the children are infinitely handier with the tools then they would have been if they had not had this training. It is remarkable what a number of children there are who are intelligent, but whose fingers at first seem to refuse to follow what their reason tells them they ought to do. They know what to do but their fingers are clumsy without this training and they cannot do what they wish. I have noticed a fourth of the children in a class like that. Many of the children get a good idea of the materials they use, especially of wood and iron, and they have special lessons on these materials.

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3491. For bricks you use wooden bricks, but do you teach children when they are dealing with bricks what they are made of in reality?—They have that in object lessons, but I am specially referring to when they get into the workshop. There they are taught the properties of wood and iron. A great point of the teaching is that it promotes habits of instant obedience to commands. You would notice yesterday that everything was done from a signal. In the paper work the teacher made a tapping sound, and after each sound a certain thing was done.

3492. When they had made one or two movements with the paper what was the object of making them put their hands behind their backs?—So that they could not interfere with it again. They had had the allotted time

3493. Most Rev. Dr. Walsh.—This also has to be done by direct observation from the black-board, not by looking at what their neighbours had done?—Yes. You will notice in the placing of the brick they look at the drawing; the teacher counts one, two, and they place it. If they had unlimited time some of the pupils might look to the right or left at their neighbours; it must be done through judgment and without outside help. Then it also, I think, aids the attendance; it is the most popular lesson of the week. Not only in the hand and eye work, but in the workshop we get the best attendances on these days when the lessons are given, and the children seem delighted to take away specimens with them. I think also it helps to decide a boy whether he will go in for a workshop career or a commercial career. I have had several parents come to me to ask me what I thought about their boys. "Do you think my boy is good with his fingers? Is he smart? Would he do well if he went into an engineering works, or would you advise me to put him into an office or at business?" I think after a lad has had two years in the shop he knows whether he has a liking for that sort of thing.

3494. You mean in the school work-shop?—Yes.

3495. Chairman.—I suppose you have boys who are only going to be unskilled labourers afterwards?—Yes; it is only the better class of parents who would ask me questions about the best course of work for their children.

3496. But even a boy who is going to be an unskilled labourer would benefit by this training?—Yes, by the fact of being taught to do things exactly.

3497. Will you give us your opinion of its effect on the school curriculum?—There is increased intelligence developed The reason is trained from the first; then it directly assists the drawing of standard three. Judgment copies (part of the curriculum) is when a copy is placed on the board and they have to make the drawing, first, with the aid of a ruler, and then without a ruler, and, when they have gone through this work, they are far more able to make those drawings without a ruler. The brick work (the placing of a number of bricks from a plan and elevation) is the best possible introduction to solid geometry.

3498. Most Rev. Dr. Walsh.—When you speak of bricks you mean the little wooden blocks?—Yes; then, I think, string work and parcel tying are useful. This work teaches the children to be neat and tidy. Then the ruling and setting out of the arithmetic in standards four, five, and six are improved, because the children are taught to be more careful. Then the calculations that are required in the work-shops for the drawing assist the mental arithmetic of the upper standards as well. Another thing is, that it helps the inventive faculties. Towards the end of the year we devote about a quarter the time to original work. We let a boy make the drawing and then make the object; we leave the work entirely in their own hands and see what each boy can produce.

3499. But he always makes the drawing of it first?—He must make the drawing first.

3500. Captain Shaw.—Were you teaching in the same school before hand and eye training was introduced?—I was, at Dartmouth-street first, before any scheme came into operation.

3501. Did the sixth standard drop any subject they used to learn beforehand in order to take up this work?—No.

3502. And do you find they are up to the same state of efficiency?—Yes.

3503. Will you tell us what extra subjects you take in the sixth standard—what class subjects, what specific subjects, in addition to hand and eye training?—I take English and geography.

3504. Just tell us what the English is?—Parsing and analysis of complex sentences; they also reproduce a story, or write a short essay or letter.

3505. You have a book, too, have you not? You study part of Shakespeare's plays?—Yes, this year we take a portion of King Henry VIII.

3506. Most Rev. Dr. Walsh.—Is formal grammar included?—Yes, they will parse and analyse sentences from the play. We also take India, Australia, British North America and New Zealand in geography; and the children draw maps of several of the counties.

3507. Captain Shaw.—Do you take any specific subjects?—Yes, we take mechanics; in some schools they take two specific subjects—chemistry and mechanics—this in the fifth and sixth standards.

3508. Chairman.—When you teach geography do you teach it on the system that they do in Ireland, beginning at the far end of the world?—No, we commence at home and work outwards. We have a lesson on the plan of the school, on the plan of the street—Rea-street; then we have a talk about Birmingham, and a talk about Warwickshire; we have a lesson on the River Rea and a map of it too.

3509. Captain Shaw.—Is this curriculum as full as it was before the hand and eye training commenced?—Quite as full.

3510. And you do not find there is any crowding out of subjects?—No; in the lower standards I have taken a little less formal grammar. Instead of three lessons a week picking out nouns and verbs, I have one lesson a week, and I find that is sufficient in standards one, two, three. Standard four commences with picking out parts of speech, in standard five they parse a simple sentence, and, in standard six, they parse a complex sentence.

3511. Chairman.—Do you leave out anything you were doing before in the school curriculum?—No, only two formal grammar lessons in the three lower standards.

3512. What would the boys in the upper standards, five and six, do if this technical instruction was not given. Would they do anything, or simply go home?—They would take more time with other work.

3513. Then you shorten some other classes?—We do fewer lessons. I took one lesson off in arithmetic, and I don't devote quite so much time to map drawing as I had done before; I take one lesson a fortnight instead of one lesson a week.

3514. What are your full hours for the school-day?—Twenty-five and a half.

3515. I mean the hours in the day?—We begin at nine o'clock until twelve, and from two to a quarter to five—that is five and three-quarter hours. In this subject we take two hours and ten minutes per week in two lessons.

3516. Most Rev. Dr. Walsh. — Are you now speaking of manual work?—Hand and eye work.

3517. Chairman.—Do you find that you meet with any accidents in the handling of tools?—I have only met with one accident in five years—for three years we had a workshop in woodwork, and for two years in metal work—and that was through a boy's own carelessness; he was going past a cutting machine, and he pulled the handle down through mischief, and got a knock on the head.

3518. Have you found the pupils objecting to the time taken up, or to the instruction being given?—I

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have only known one parent to object; he said his boy was going into an office, and he didn't see that it would help him in any way

3519. Do you think that the metal work training would be suitable for other places besides Birmingham, or any other metal work town?—I think metal work would be only suitable for towns where metal is the staple industry, but the woodwork would be suitable for boys in any town, and the hand and eye for any kind of district.

3520. With regard to special teachers, what special teachers are required?—None, except the director; the director gives lessons to the ordinary school teachers. It is usually necessary that a teacher should attend eight or ten times, and they can get sufficient practice from these attendances to enable them to face the classes.

3521. Do you mean one director for the whole of Birmingham?—Yes.

3522. In a place that was not a great city like Birmingham it would be necessary to have a director for an area?—Yes, I should think he could take in many small towns. In fact, Mr. Bevis, when the system started, went to many towns around here, Coventry, Warwick, and Leamington, but when the subject was withdrawn as a compulsory subject the classes collapsed.

3523. Will you explain about the special certificates?—The Board delegates the power of granting certificates to Mr. Bevis, and he grants them if the teacher has attended eight or ten lessons, and attended also an examination and got at least 60 per cent. of marks; if they get sixty they get a second-class, and for seventy-five or above they get a first-class certificate; this certificate is countersigned by the chairman of the School Management Committee.

3524. Rev. Dr. Evans.—Would that certificate be of any use outside Birmingham?—It would not, unless the outside authority chose to acknowledge it.

3525. Chairman.—Would you understand the certificate to imply that the teacher understood the subject, or would you understand it to imply that he was qualified to teach the subject?—That he understood the subject, but I should not say that if a teacher got a certificate he would be thoroughly capable, because that would only come by one or two years of experience. For instance, I find my teachers are more skilful this year than last year, because they find out their capabilities, and become more inventive. At first some are slow at putting drawings on the board; they have to think a good deal before they make the drawings.

3526. Supposing a teacher came with a wrong system in his head, is there any means of correcting that?—In the first place I think I should find out whether he had or not by going round myself. I am often in the rooms, and if it was in my power I should put the matter right.

3527. Captain Shaw.—A teacher will not get a rise of pay unless he gets a certificate?—That is one of the conditions. He must make an attempt to get a certificate, and the question is always asked by the Inspector of the Board, "Have you got a certificate?" and that is considered by the Committee when the increases of salary are made.

3528. Chairman.—Do you find that the wire work is good where drawing is no part of the curriculum?—Yes, especially in girls' schools; many of the girls' schools don't take drawing as a subject. It aids the drawing, because it teaches form very well.

3529. Captain Shaw.—Drawing is part of the wire work?—Yes, and of all the work in all the classes.

3530. Most Rev. Dr. Walsh.—The wire work is good where you have drawing, and it is good even where you have not drawing?—Yes, I take hand and eye work as a class subject, and get two shillings per head.

3531. Chairman.—Why do you go in for flat work?—Most of the work is flat work; the paper work is flat work and the wire work, and the cardboard work, and the metal work we do here. We go in for it simply because it is part of Mr. Bevis's system, and less tedious to the children. When you go in for solid iron work you work a long time and don't seem to get much done.

3532. Solid work would be more technical work?—No, it isn't more technical, it is more laborious, and there seems to be little result. You may work two hours at a solid piece of iron, chipping, and the boy gets disheartened, whereas, if he could file and turn a thing the boy sees some result for his work. But you don't get the plan and elevation in the flat work as in the solid work.

3533. Captain Shaw.—I think they have both plan and elevation in the sixth standard?—Yes, six drawings out of thirteen, but there are two of them that specially involve plan and elevation—the universal gauge and the paper weight—they both bring in plan and elevation; you would get that sort of work if you went in for bent iron work more.

3534. Chairman.—Have you any suggestion to make with regard to modified courses for girls' schools in standards 2 and 3?—Yes, I should continue the paper work of standard 1 into standard 2, and in 3 and 4 take cardboard work and brush work; it would not be quite so technical, and it would be more artistic.

3535. What do the girls do in the way of needlework?—They go in for the one shilling grant.

3536. What sort of work do they do?—Plain needlework and knitting.

3537. And in Birmingham all the materials are provided free, and therefore there are no difficulties about that?—There are no difficulties about that whatever.

3538. Have you anything to say about the length and number of the lessons?—I find it best to have a good lesson of, say, one hour rather than a short lesson of thirty or thirty-five minutes.

3539. And have one hour instead of two half hours?—Yes; and with regard to the workshop drawing for the upper standards, we finish the drawing off if it takes an hour and a half or two hours, rather than have short lessons of thirty-five minutes, because it takes a long time to give out the drawing materials, and put them away—nearly half an hour—so we finish the work at one long lesson rather than two or three short ones.

3540. What is the arrangement about the grants?—We get two shillings per head. I take it as a class subject in standards one, two, and three. I take object lessons as the first class subject. Then I take hand and eye as the second class subject. In standards four, five, and six I take English and geography as the class subjects. Of course manual is an extra subject which we get a grant for.

3541. Professor Fitzgerald.—Do you get any money for the extra subject?—Yes, we get two shillings for each of the class subjects, and four shillings for the workshop practice.

3542. Rev. Dr. Evans.—To whom is this money paid?—To the School Board: we are paid by fixed salaries; we have nothing to do with the financial arrangements.

3543. If the money were paid direct to the teachers, what effect would it have in the shape of results fees?—I don't think it would be a wise system, we might cram the subject more; I don't think the effect on the children would be as good.

3544. Chairman.—In Ireland teachers are paid partly by salary and partly by result fees?—I was not aware of that; but I think it would be better not to pay us for results, but to pay us a fixed salary, and we should teach the subject more intelligently and should not be so anxious to get the result regardless of the method.

3545. I was in one of the schools the other day, and an object lesson was being given with regard to a flower. How would the knowledge of the class be tested for the purpose of gaining the grant in such a

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case as that?—It might be tested when an inspector went there. He might say, "What is the lesson for the day—give that lesson," or he might ask the teacher to give a part of a lesson, or he might himself question the class on any of the object lessons that had been given.

3546. And then judge of the teaching by the result of the knowledge of the class?—Yes; but it would not be necessary for the class to be continually grinding up all the facts given in previous lessons—that would be monotonous.

3547. Most Rev. Dr. Walsh.—Will you kindly explain a little more fully the system of payment for these schools? Do the payments for this manual instruction and hand and eye training come from the Education Department or from the Science and Art Department?—The payments for hand and eye work—standards one, two, and three—come from the Education Department; the payments for the workshop manual training for standards five and six come from the Science and Art Department.

3548. That is altogether in standards five and six—what becomes of the fourth standard?—We get no payments whatever for the cardboard work; it is entirely a local subject taught by the wish of the Birmingham School Board.

3549. The Birmingham School Board pay you your salary and regulate what you are to teach?—Yes.

3550. But in the general educational arrangements of the country there is a gap between standards three and five?—Yes.

3551. Captain Shaw.—The reason for the gap is that you take up two other class subjects, and you are limited to two subjects?—Yes; but I think we should have a grant for the cardboard work of standard four.

3552. Most Rev. Dr. Walsh.—The result of the system is, that where you have not a body like the Birmingham School Board, this kind of training is dropped for one year?—Yes.

3553. Do you, as an experienced teacher, think it advisable that it should be dropped for a year?—I do not, because the cardboard work is a splendid introduction to the workshop practice of the fifth and sixth standards.

3554. I think you said that the school hours are five and three quarter hours in the day—that is not altogether for secular instruction?—There is a quarter of an hour for Bible reading, and twice a week a clergyman of the Church of England comes to my school and conducts a children's service from nine to half-past nine, when the attendance is optional on the part of the teachers and pupils.

3555. So that you have an hour for special religious instruction, and five quarter hours for Bible reading in the week?—Yes; and in addition to that we have a moral lesson of twenty minutes.

3556. Can you tell us how many hours you have for secular instruction?—Twenty-four hours and five minutes for secular work. And then there is fifteen minutes in the morning and ten minutes in the afternoon for recreation.

3557. And on how many days of the week have you these school hours?—Five—Monday to Friday—there is no school on Saturday.

3558. How many hours do you give to hand and eye training in the week?—Two hours and ten minutes, given in two lessons.

3559. Then in the manual training, as we may call it, working in wood and iron, is the same time given for that?—In standard six they go at a quarter to two on a Friday afternoon, and go on continuously until a quarter past three. But then in addition to that, they have drawing for the workshop practice, which occupies thirty-five minutes. We prepare the copy for the manual work in school.

3560. Professor Fitzgerald.—So they practically have got more than three hours a week at that subject?—No; two hours per week.

3561. Most Rev. Dr. Walsh.—Of what character is the inspection you have in your schools: please take first the hand and eye training?—The Board's Inspectors come in several times a year. Her Majesty's Inspectors must come in at least twice per year without giving us notice, and they may ask for a lesson to be given in this subject if it is not the time for this particular lesson.

3562. In order that he might judge of the teacher's capacity?—Yes, he might also ask for specimens of the work done. Mr. Bevis also holds a full examination yearly.

3563. Without going into details I believe there has been a change in the nature of the inspection—they have dropped the examination for results and substituted a system of inspection of the methods of the teaching?—Yes, my lord.

3564. Is there any guarantee under the present system, with a capable teacher, that he works and does not idle, on all the other days of the year, when the inspector is not there?—There is the guarantee of the head master being on the premises, and the work may be examined at any inspectorial visit.

3565. Is there any check on the head master?—Yes, in Birmingham we have two Board's Inspectors who walk in at any time: also Her Majesty's Inspectors and members of the Board.

3566. But in the ordinary country districts in England where there is not a Board's Inspector, is there any guarantee that the teacher exercises his power of teaching through all the ordinary days of the year?—I would leave that to his conscience if he is a conscientious teacher. Besides all schools have managers, and there are the surprise visits of the inspectors.

3567. Professor Fitzgerald.—Does not the inspector give some sort of an examination to the students? Does he not ask them any questions?—Yes, usually.

3568. Would he not from those questions be able to find out whether a teacher had taught or not?—Yes, and in addition to that, he would ask for the records of the work each day. We enter up what we do on a certain date. For instance, I could go to my school on any particular date and ask, "What copy did you take in wire-work or card-board work," and the inspector asks them in the same way, and he can ask for the same lesson to be given over again, and in many subjects he can ask also "Show me your notes—what you have prepared for to-day?" He does that on a surprise visit.

3569. Most Rev. Dr. Walsh.—Suppose the Inspector finds anything wrong, as he may in the best managed schools, does that involve a diminution in the grant for the year?—That would depend upon whether things were seriously wrong.

3570. But supposing they were not—that it was a case of a few children not being able to answer in geography?—He might make a note of that in the report of the school.

3571. My point is this:—Under the results system the whole income of the teacher depends upon the answering of each individual child in the school?—I should say not entirely, but in the main it does.

3572. It does not with you, because you have not the results system as we have it in Ireland. Well, the Inspector makes a report?—Once per year he makes at least two visits and he reports.

3573. Suppose the judgment is unfavourable, that puts the teacher, as it were, on his good behaviour, and he works up to get a favourable report next year?—Yes.

3574. But in the meantime he doesn't lose any portion of his income—now, don't take an extreme case?—No, he would not; but if the work was badly done the Inspector might say, "I will only give the one shilling grant, instead of the two shillings." I am now referring to hand and eye work.

3575. Don't you think that system works better than making the teacher's salary depend on the work of each individual child in the school?—Yes, and it does away with the feeling of irritation or anxiety.

3576. Captain **Shaw**.—Do you know that it is a regulation of the Education Department that the grant is not to be varied without a year's notice to the school?—I do, as regards the drawing, but not as regards the hand and eye work. If it was a very serious defect the grant might be dropped from two shillings to one shilling.

3577. Most Rev. Dr. **Walsh**.—You have an appeal in such a case?—Yes, I might appeal to the School Board, and the School Board could appeal to the Education Department, and they might order an independent examination.

3578. Then supposing the report was very unfavourable and influenced the grant, that would affect the amount of money the manager of the school would get to pay the teacher, but it would not affect the actual salary received by the teacher?—Not for that year, but possibly it might stop his increase of salary.

3579. Mr. **Struthers**.—But as a rule the teachers are paid a fixed salary?—Yes; but a man naturally wants to obtain the highest results.

3580. Most Rev. Dr. **Walsh**.—What tenure have the teachers here in Birmingham?—Subject to three months' notice either side.

3581. Is that three months' notice a special privilege given by the Birmingham School Board?—I think that is the rule all over the country now, and one month for an assistant teacher.

3582. Does that apply to dismissal without cause, —supposing the manager said—"I think I can get a better teacher for this place; the teacher I have is a good one, but I should like to improve matters"? —Well, the manager could do that on three months' notice; there is no appeal.

3583. Mr. **Struthers**.—He is not required to state his reasons?—No.

3584. Most Rev. Dr. **Walsh**.—You spoke of hand and eye exercises as developing certain very valuable points in the pupil's character—the power of rapid observation?—Yes.

3585. You consider that that applies to paper folding?—I do, as well as to other things.

3586. My reason for putting the question is this: I think paper folding is one of the things that ignorant or half-educated people would say was merely a sort of pastime to amuse the children. Kindly explain to us how it is that paper folding, simple as it is, develops the power of accurate and rapid observation in the children?—Take the case of the example worked before you yesterday. There were nine drawings made of a bracket. The object to be made eventually was a bracket; the teacher put the first drawing on the board, the scholars put the paper correctly; then the teacher made the second drawing, and passed on, giving about three minutes for the actual operation. If the scholars could not read the plan they would have got hopelessly in the rear.

3587. Then we have not merely the actual folding of the paper, but the fact that it has to be folded from a diagram on the blackboard?—Yes, my lord.

3588. That secures, first, rapidity of observation; then it secures accuracy?—Yes, and it secures intelligence, because the scholar has to notice whether it requires to be folded to the right or to the left, or upwards, or backwards, or downwards, or otherwise.

3589. You have special conventional signs to indicate whether the paper is to be folded backwards or forwards?—Yes.

3590. Then you have an arrangement to secure that the children shall work from the blackboard, and not from observation of their neighbours?—Yes, they are given a certain time and work to a signal; count one, two, and do it, and then their hands are put behind their backs.

3591. Then the teacher goes round?—Yes, to see whether the work is done, and points out the errors.

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3592. In a school yesterday Professor Fitzgerald and I corrected some little child who had evidently made a mistake. It must have been an obvious one when I could detect it; but the child looked at the paper, and, whilst evidently recognising its mistake, kept its hand behind its back until the teacher came round?—They are taught to do that.

3593. That also, I take it, goes to develop both rapid and accurate observation?—Yes, and the power of obeying the teacher's order.

3594. The thing must be done promptly, and then left in the condition in which it has been done?—Yes.

3595. Professor **Fitzgerald**.—I would like to call attention to this regulation about the lowering of the grant—"A lowering of the grant without strong reasons would often deprive the managers of poorer schools of the means whereby to introduce reforms tion. No part of the grant should be lowered unless there is a very distinct falling off in the condition of the school in which the grant is assessed. Your reason for lowering it should be clearly set out in your report." They may be lowered for reason, but only in an extreme case?—I said that, if the work were very badly done, but if there was a slight falling off it would be mentioned by the Inspector, and if the defect occurred again the grant would be lowered, but most teachers would take cognizance of the warning.

3596. Most Rev. Dr. **Walsh**.—Or the manager would take cognizance and get a better teacher?—Yes.

3597. Professor **Fitzgerald**.—In making the woodwork they do not work to models; they work to plans and elevation; they work more to making of joints, not a finished object?—We don't go in for making actual objects.

3598. But in the iron-work they do make finished objects?—Only spanners, and they are not objects of commerce.

3599. You mean you do not sell them?—We do not sell them.

3600. But do you not think that it increases the interest of children to have objects produced rather than a mere joint?—Possibly it would.

3601. For instance, in the cardboard work do you not produce finished objects?—We produce finished objects there.

3602. Do you not think that would be more interesting to the children than to merely teach them to make joints?—Yes, I quite see that, and when I attended the woodwork course in connection with the City and Guilds I went in for making stools and work-boxes, but I don't know that I should not have done better if I had kept to the making of joints rather than objects.

3603. You don't think that it is possible to choose a system of models that would combine both?—I believe the Sloyd system does that.

3604. You mentioned bent iron work. Would not that be an opportunity of giving expression to art training?—Yes, but you would get but very elementary work. I mean cold bent work bent round tubes. It would be very elementary. The great advantage in getting bent iron-work would be, you would get the children to work from plan and elevation, whereas we now work from flat work.

3605. But would it not also lend itself to art expression?—It would.

3606. Have you observed whether manual training has had any effect on the teaching of other subjects? —Yes, I mentioned eight or nine effects.

3607. You mentioned object lessons in standards 1, 2, and 3 in addition to this hand and eye training. What sort of object lessons are these?—I have a scheme of twenty-four lessons altogether. I submitted a graduated scheme to Her Majesty's Inspector at the beginning of the school year. In standard 3 we take such subjects as oxygen, hydrogen, the air, ventilation, and so on. We give these twice or three times a week.

3608. There is no prescribed code?—The Code gives many schemes, but they are purely optional. We

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can take one of the schemes from the Code, or submit our own schemes to the Inspector, and get them confirmed.

3609 Do you think those object lessons are, educationally, valuable?—I do strongly, and they are popular too.

3610. Do you think that the peripatetic science teachers that go round schools for the Board are of use?—Yes, I do; we supplement their work as well. We repeat the lessons, and in my own school I am founding a small museum for the style of things they take round.

3611. Do you encourage the children to make collections at all?—Yes, for the museum and for the object lessons.

3612. Or for their own museums?—In my district—it is a very poor district—I have a fairly good school museum.

3613. Most Rev. Dr. Walsh.—What kind of objects?—We had a lesson on the cow the other week in standard 1.

3614. You do not bring cows into the school?—That is not an object lesson. It is a lesson of general information, but a child brought me a scraped jaw-bone of a cow. We would not give the whole of the lesson in one day. We would have it three or four times; and the next time, the teacher showed this jaw-bone, and had a good talk about it. I have had a cat in the school, and a rat, and a pigeon, and a mole, &c.

3615. Professor Fitzgerald.—The work I had in view was more that of the art instructors?—You mean those who come round and assist us in drawing?

3616. You find them useful?—Yes, I do. They are experts, and able to help us in many ways.

3617. Mr. Molloy.—Are you satisfied with the quantity of time in the week devoted to the hand and eye training. You do not desire any extension of time?—No, I find the time I give quite sufficient.

3618. It still leaves ample time for ordinary literary subjects?—Yes; it does not affect the ordinary work. I have got a copy of the school report here.

3619. In proportion to the total amount of time during the week that the school is open, how much is given to ordinary literary subjects?—Well, I have three lessons per week for English composition, three lessons for word-building and spelling—I am speaking of the upper standards. Then I have three grammar lessons, one of which is a paraphrase lesson, one is parsing and analysis from the play, the other on roots, prefixes, affixes, or formal grammar. Then we have three lessons per week for teaching geography, and about four reading lessons.

3620. Mr. Struthers.—Each lesson being how long?—Thirty-five minutes.

3621. Mr. Molloy.—The teachers of your department give instruction in drawing—not the teacher of the manual work exclusively?—All the teachers take part in drawing in the Boys' School, but I do not teach drawing to the girls, except so far as the drawing required in the hand and eye work.

3622. When the fifth and sixth standards are engaged in manual work away from you, how are the literary teachers in these two standards occupied?—My sixth standard teacher supervises the drill and singing, and that assists me materially. I have nineteen classes in my school with 1,000 children, and I could not possibly get round and examine all the subjects.

3623. Chairman.—I noticed that the same person was teaching singing and wire work?—Yes, but I am speaking of the sixth standard teacher. When the boys go into the workshop he has no class on his hands.

3624. Captain Shaw.—Does the whole standard generally go to the workshop?—They go in batches. I have twenty-eight names, and we send twenty-four in, and those who are left I draft into standard 5, and they do arithmetic, and, as a rule, there would be half the standard left for the teacher.

3625. Professor Fitzgerald.—The hours you have mentioned come to about an hour and a-half a day on literary subjects, but there are other things besides?—Yes, we have not mentioned arithmetic. I have at least five hours a week for arithmetic; and then there is map-drawing. I will supply you with a copy of the time table with pleasure

3626. Mr. Molloy.—Do geometry and algebra come in as part of the course?—We do not take either geometry or algebra.

3627. Professor Fitzgerald.—Do you think algebra would be a good thing?—I don't think it would be as useful as mechanics. I taught algebra in Yorkshire as a specific subject before I came here, but we did not get far enough to be of service. We only taught as far as simple equations.

3628. If they learned their mechanics, would they not require practically to use algebra; if they learned a law and wrote it down in words, would it not be well for them to express it in formula?—Decidedly.

3629. Is not that algebra?—Yes, but the amount required would be so slight, even in the mechanics they do, that it would not be worth while taking it as a special subject.

3630. Would not that be a good way to begin algebra, to learn it as a method of use to them?—It would, if there was time, but there must be some limit to the subjects taught.

3631. Algebra is the expression of general laws by a formula?—It is.

3632. Is not that a great deal better way of learning algebra than learning it as "Euclid written with small letters," as I was told once was one of the distinctions?—Yes, I have tried both mechanics and algebra, and I am sure mechanics is more popular and in every way more interesting to children.

3633. Mr. Molloy.—Do the children prepare home exercises?—They do in the upper standards—geography chiefly, and poetry. I gave sums at one time.

3634. How often in the week is mental arithmetic taught?—The first ten minutes of each lesson, at least five times a week.

3635. Rev. Dr. Wilson.—Are those hours from 9 to 12, and then from 2 to 4.45 the hours for all England?—Only for Birmingham. In my former school in Yorkshire I closed at 4.30, and until about eight or nine years ago the schools closed here at 4.30, and a quarter of an hour was put on for physical exercises. They take daily drill in the hall, and I ought to have added that we have an hour's lesson in physical exercises—indian clubs or dumb bells or stave drill. We have one full lesson every week, and a quarter of an hour every day.

3636. Then for all England the hours are 5½?—Yes.

3637. At what time is the Bible read?—In the morning at 9 promptly—9 to 9.15; but when the Minister gives special lessons on Tuesday and Friday we read it in the afternoon from 2 to 2.15.

3638. Most Rev. Dr. Walsh.—When is the school roll called?—I call it and close it at 9.15 to 9.20 in the morning, and 2.15 to 2.20 in the afternoon.

3639. Rev. Dr. Evans.—That is, the religious instruction or reading is before the call of the roll?—We close it after the religious instruction is over on Tuesday and Friday.

3640. Rev. Dr. Wilson.—In the country is it convenient for the children to go away to get dinner?—My first school was a country school, and many of my children came three miles. Usually they brought their dinners with them, and on dark days I let them go home at a quarter past four, sometimes at four o'clock, and I closed the register at two o'clock. I found the parents liked that.

3641. Mr. Struthers.—Inspection is not universally substituted for examination; when an Inspector is in doubt about the quality of the work he would

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Mr. George H. Robinson.

still examine?—Yes, there is always that check on the teacher.

3642. These object lessons you spoke of, are they part of the science instruction of the school, or do you take science as a class subject?—No, we take object lessons, and hand and eye training, but we don't take elementary science as a class subject.

3643. What are your class subjects?—Object lessons and hand and eye in first, second, and third standards; English and geography in fourth, fifth, and sixth standards.

3644. Do you teach French?—No.

3645. Any specific subjects?—Yes, mechanics in stages one and two.

3646. Do you think you would teach more of these specific subjects if you hadn't to devote so much time to hand and eye training—would you teach mathematics or French?—We could do so, but I don't think as in the case of algebra—I don't think we could get sufficient done to be of real service to the children. The little bit of French they would do would not be so good as taking a three or four years' course of hand and eye work for pupils in elementary schools.

3647. Captain SHAW.—As regards the peripatetic teachers the subject you take is mechanics?—Yes.

3648. And you have a peripatetic teacher for mechanics?—We have.

3649. You know nothing about the teaching of chemistry by peripatetic teachers?—I do not take it as a subject for a grant.

3650. Then you have no personal knowledge?—Only to this extent, that every third lesson he gives is a chemistry lesson, but there is no attempt made to make it a subject of examination.

3651. Is the mechanics lesson illustrated by experiments?—It is fully; he brings a large amount of material with him, and I am supplementing that by forming a small museum of my own, so that I can keep the bulk of the materials.

3652. Therefore your remarks only apply to mechanics?—Yes.

3653. And that is examined by Her Majesty's Inspector?—Yes.

3654. Rev. Dr. EVANS.—How long are you in the Rea-street school?—I have been there a year and ten months, and I was six years at Dartmouth-street, Birmingham.

3655. Was the manual instruction going on there when you came to it?—It was. I am referring to Rea-street.

3656. So that you are not in a position to compare the progress of the pupils in the literary subjects now with what their progress was before the manual instruction was introduced?—To a certain extent no; but of course I was in Birmingham when the system was started, and I have seen the whole system, but I am not able to compare Rea-street now with Rea-street five years ago.

3657. And you cannot say whether the same number of literary subjects is now being taught as was taught before the introduction of manual training?—When I went there I omitted two formal grammar lessons in the lower standard, and one geography lesson.

3658. Who draws up the time table in the Board school?—Each head teacher.

3659. Is there any supervision of his draft?—Yes, it is sent to the Board's inspector, who looks it over. It is sent then to the clerk of the Board, who signs it; and it is submitted to Her Majesty's Inspector, and he signs it. It has to be approved of by all these.

3660. Don't you think it would be a very great advantage in the teaching of arithmetic to have general arithmetic, that is algebra, taught?—If you are going in for higher arithmetic; but in the arithmetic we teach up to the sixth standard I don't think it would be of much service. Besides we have not the time to do it.

3661. Professor FITZGERALD.—Do you teach the greatest common measure and the least common multiple?—Yes, but we could not teach the theory of the greatest common measure and the least common multiple to pupils in elementary schools

3662. Do you teach extracting the square root?—We do not up to standard six.

3663. Rev. Dr. WILSON.—Do you give much time to penmanship and hand-writing?—Yes.

3664. Rev. Dr. EVANS.—With regard to your hand and eye or manual training, could you get on in Birmingham without Mr. Bevis?—We might, but we could not have done it at first. We should have had a jumble of systems, and that would have been awkward For instance, children are very migratory in Birmingham. Many families in my district remove everything in a small cart or barrow. It would be very awkward if I had a system and the next master to me had another system. Without a general system, everything would drift into chaos; new teachers are entering the Board's service every month.

3665. Supposing we were going to introduce a system of this sort in Dublin, do you think that a director similar to Mr. Bevis—he might not be as good or he might be better—do you think a director would be essential?—I do; for my ideas were very crude five years ago.

3666. You think you were not an exception as regards teachers; viz., there would be a similar need on the part of other teachers to that you felt yourself?—I believe there would be a similar need

3667. Most Rev. Dr. WALSH.—And it would be absolutely necessary to secure uniformity in so far as uniformity might be desirable?—Yes; it would be necessary to have a strong man at the head of affairs.

3668. Rev. Dr. EVANS.—I think you said Shakespeare's Henry VIII. was taught in the fifth and sixth standards?—Yes.

3669. And do you say that the pupils were taught analysis of sentences?—Yes, and parsing.

3670. Would your pupils be able to analyse a sentence in Henry VIII.?—Yes, a fair one; I don't mean an extraordinarily stiff one; but an average sentence they would be able to analyse and parse.

3671. And give you reasons for it?—Yes.

3672. And in dealing with a clause, whether it was an adjectival or an adverbial one, they could tell you what it was, and give you their reasons?—Yes, they could say what kind of work it did.

3673. Because you said you taught the practice of arithmetic without the theory. I want to know whether you teach analysis of sentences without the principles of analysis?—I don't want to give myself away. When I said we didn't teach theory, the Commissioner to the right asked me did we teach the greatest common measure or the least common multiple I said I didn't teach the theory. I don't think there is a boy in Birmingham could go through the theory of it. But we teach a reasonable amount of theory work in all the standards.

3674. As for example, you teach the reason why in subtraction, when you have in the lower line of figures a higher unit than the one above it—you teach your principal of borrowing so that your children understand what they are doing?—Yes; we teach the principle of equal addition, and that multiplication is a short form of addition, and that division is a short form of subtraction and many other points. But the forms of the higher proofs, the proof of square root, for instance, would be utterly beyond the capacity of many boys.

3675. Most Rev. Dr. WALSH.—And they are not much the worse of not knowing it?—I am sure they are not.

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Birmingham.

March 16, 1897.

Mr. John Taylor.

Mr. John Taylor, Head Master of the Stratford-road Board Schools, Birmingham, examined.

3676. Chairman.—I think you are Head Master of the Stratford-road Board Schools?—Yes, my lord.

3677. And I think you have some observations to offer us upon the subject of drawing; will you tell us the routine of standards one to seven?—The routine for standards one and two is practically the same, with this exception that standard one usually do their work on slates and standard two on paper. The routine includes freehand and ruled copies. The ruled copies would be parallel lines of various kinds and angles and right line forms, squares, oblongs, and so on. The plan is to have the figure done by the ruler, and then either that same copy copied by freehand or a similar copy done by freehand on the paper or slate. Standard three is freehand, regular forms and curves.

3678. Most Rev. Dr. Walsh.—The same thing on paper?—The same thing on paper, a little advanced. Standard four more advanced freehand with simple scales and drawing to scale. Standard five still more advanced freehand, model drawing of easy rectangular figures and easy common objects, geometrical figures with instructions to scale and otherwise. Standard six still more advanced freehand, advanced models, advanced geometry. Standard seven advanced freehand, more advanced model and solid geometry.

3679. Chairman.—What is the classification of scholars?—According to ability, not the same classification as in the ordinary subjects. Teachers have a choice in that matter. Some teachers keep the same classification throughout, but I prefer a separate classification in drawing from the other subjects.

3680. What supervision is there of each class?—The class teacher who is allocated to a particular class is under the supervision of the head teacher together with Inspectors of the Board and Science and Art Inspectors.

3681. Just to go back for a minute to your last answer, do I understand by the separate classification of scholars for drawing, that you might take a very clever boy at drawing out of a low standard and put him to work for drawing with a higher standard?—That is so.

3682. Most Rev. Dr. Walsh.—Is the drawing lesson for all standards taught at the same half hour or hour of the day?—That is my arrangement; otherwise it could not be done.

3683. Chairman.—What are the difficulties of model drawing?—Perhaps the chief one is want of accommodation. The schools are not built as science and art schools, and there is a difficulty in placing models in such a position that the boys can see to begin with, and can see properly. To teach model drawing I think it is necessary that the model should be in the centre of the boys; that is, you cannot accommodate any object to a class unless the scholars are placed in a circular fashion. In my place it necessitates removing the desks from the class room into the central hall and the making of other arrangements. I had it in this way when I arranged the lessons—either to come on the first thing in the morning or the first thing in the afternoon, so that the caretaker has time to set the desks as I want them, and then they are put back in their places at the interval in the morning when the scholars go out to play and at the interval in the afternoon. That is one of the difficulties. Another very important one is that every child has a different view, excepting with the circular models where the view is pretty much the same, and that necessitates very careful supervision, and if there is a large class it is very difficult to supervise the drawing lesson in model.

3684. They all see it from a different point?—They all see it from a different point, and you have to look at every one to see that it is drawn correctly.

3685. For instance, if I were going to take you as a model, I should see you as a full face, whereas Mr. Struthers would see you in profile?—Quite so; that is a good illustration, my lord.

3686. What are the length of the lessons and the time given to the subjects?—I have two lessons per week, an hour and ten minutes each. I find that gives ample time to teach the subject.

3687. Are the lessons simultaneous or otherwise?—Simultaneous, in accordance with the classification.

3688. How is the supply of materials obtained?—The Board provides everything. In the way of drawing they provide either paper or books; they provide pencils, rulers, india rubber, and in the advanced classes a compass for geometry and such like subjects.

3689. What is the examination in the subject?—By the Science and Art Department.

3690 How often?—The Inspectors, I believe, have the power to come in at any time to examine the work. We are also expected to keep about two months' work in hand so that if they drop in at any time they can see what is being done; and then there is the annual examination, over and above this, on which the grant is awarded.

3691. Rev. Dr. Evans.—Who holds it?—The Science and Art Department through their Inspectors.

3692. Chairman.—How are the payments for the Science and Art Department made?—The school is examined and a mark awarded to it according to the way in which the work is done, either fair, good, or excellent. If the mark is only fair the payment is one shilling, for good one and sixpence, and two shillings for excellent on an average of the whole school. The work is taken as a whole and one of those three marks awarded to the school, and the payment made accordingly.

3693. What are the general results of the teaching of drawing?—I think the drawing is an excellent hand and eye exercise. I am of opinion that it is the best hand and eye exercise that we have in the school. It trains the hand to follow the eye and to act as it were in obedience to the eye. I think also that it encourages thought, and creates careful observance, and by that means also increases the general intelligence. I also think that when scholars have left school, if they have a good knowledge of drawing they would be better and more artistic work-people—whether they are boys or girls. I believe if a girl learns drawing she would be a better dress-maker with a better idea of form, and would fall into any work of that kind very much more easily. I also think that it encourages neatness, accuracy, and also cleanliness. We make a special point of neat drawing, done in a cleanly manner, without any dirt upon it whatever. And I also think that a change of lesson, a change from the mental work, is very much liked by the boys and girls. We frequently find that dull boys in mental subjects can do something at drawing, and it is a means of offering them a word of praise, when often in the other lessons one is obliged to reprimand them for their work. It is pleasing for a teacher to be able to say something encouraging to a dull boy.

3694. With regard to average intelligence I suppose it has still more a good effect?—Yes, my lord.

3695. Rev. Dr. Evans.—How long are you in the Stratford-road School?—Over eleven years.

3696. Was manual instruction or hand and eye training going on there before you came?—No, sir; I opened the school as a new school.

3697. Did it begin concurrently with your commencement?—No; it didn't.

3698. Well, then, are you able to compare the proficiency of the pupils in the literary subjects now with what it was before the manual instruction?—I think I am.

3699. What is your opinion as to how the literary proficiency at present compares with what it was

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before manual instruction was introduced?—I can only say that, when the subject was introduced I was not very favourable to it; the bulk of the teachers were not. We had the opinion that it would affect the other subjects considerably, but my experience has taught me that it does not. I have altered my opinion on the point; experience has taught me that the other subjects have not suffered.

3700. That there is as good proficiency in grammar, geography, and arithmetic as there had been before?—That is my experience.

3701. You heard what was said by Mr. Taylor about the inadequacy of the certificate; do you agree with that opinion?—No; I did not hear Mr. Taylor this morning.

3702. Do you believe that the possession of the certificate is adequate proof of the teacher's fitness to teach drawing?—Not to teach drawing. I think it is quite possible to have a teacher's certificate, but to teach drawing is a thing which the teachers have to get as best they can when they take charge of a class.

3703. Of what value is the certificate?—It is a guarantee that the teacher has undergone a course of instruction on the subject and had an examination on the subject, and I suppose it is some guarantee that he ought to be able to teach the subject.

3704. CHAIRMAN.—It is a guarantee that he can draw, but not a guarantee that he can teach drawing?—Quite so, my lord. He has to pass an examination in drawing himself before he can get a certificate. But the drawing by oneself is a very different thing to imparting it to a class, and especially a large class.

3705. Is there any system at present whereby a teacher can be taught not merely to draw himself, but especially taught to teach drawing to others?—Not that I know of, my lord.

3706. Would you think it desirable if such a course could be arranged, that it should be inaugurated?—I do not find there is any great difficulty. If a teacher has got a certificate for drawing, and has gone through a course, in a very little time he or she is able to do the drawing well.

3707. Is he or she able to show other people how to do it well?—Yes.

3708. Most Rev. Dr. WALSH.—You are dealing with people who are teachers, and who understand the art of teaching generally?—Yes, if you get a teacher who is not very well up in drawing, it is the duty of the head master to pay special attention until the teacher is able to take it himself.

3709. Rev. Dr. EVANS.—Do the training colleges give instruction in this manual part of the curriculum?—Not that I know of.

3710. It is not taught in the training colleges?—I am unable to speak definitely, because it is some time since I left a training college and a great many things have happened since then.

3711. The point I want to get to is how you would obtain qualification for the teachers in this subject?—I see no other way except having a director and the director giving these teachers lessons in the evening.

3712. That is a man like Mr. Bevis; you would require a man such as he in every other locality?—I see no other way.

3713. Captain SHAW.—Do you think you could with advantage introduce model drawing before the fifth standard?—It has been tried, as perhaps you know, but with very poor results. I am strongly of opinion that inspectors should be very lenient with model drawing on account of its difficulties.

3714. Do you find it is in any way affected by the knowledge of plan and elevation which you can get from hand and eye training; do you find they are more inclined to represent every solid according to its correct elevation instead of its perspective view?—I do not think so. My own opinion is that drawing should come before hand and eye.

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3715. It does as a matter of fact?—Not in all cases. In some of our schools in the girls' department they do not take drawing but they take hand and eye.

3716. You think they ought?—Yes; in my own school I have special permission to take drawing instead of hand and eye for the girls at my own suggestion.

3717. Mr. STRUTHERS.—You spoke of the difficulties in the way of teaching model drawing, but you still think it desirable that model drawing should be taught?—Yes, I do.

3718. One of the difficulties is the size of the class, the superintendence of the class?—It ought to be to a small class. I think the class ought not to consist of more than twenty or twenty-five to teach model.

3719 And if you had a class of twenty or twenty-five model drawing could be taught perfectly well?—And accommodation to place them in a convenient form.

3720. You spoke of certain effects of the teaching of drawing, qualities of neatness, and so on, does that apply to the use of India rubber in drawing; don't you think pupils abuse the use of India rubber?—It depends on the teacher. If I found drawings rubbed very much I would have lessons done without giving out India rubber at all.

3721. Would it not be better to have that plan universal?—I don't think so. It is all very well, but I should not advocate all the drawings being done without India rubber. If a class is inclined to rub out and get nothing done and to nibble at the subject instead of making good sweeping lines, I should give out no India rubber at all.

3722. Professor FITZGERALD.—You do not think that a person without training as a teacher would be able to teach drawing?—I do not.

3723. A house painter would not be a good teacher of drawing?—I certainly think not.

3724. You think in order to be a teacher he should get some training as a teacher?—Decidedly so.

3725. Do many parents object in Birmingham to their children learning manual work?—I have only had one case.

3726. On what ground did they object?—They simply sent a letter that they did not wish the boy to take it. I think it was brought about to some extent because the boy had to come earlier. He was a very late comer and had to account for it, and that was the excuse invented for not taking manual work. He was repeatedly late and repeatedly spoken to about it.

3727. Then you have not heard much complaints made here that they did not want the children to be made carpenters?—I have had no complaint of that kind.

3728. Are the boys that come to you from the shopkeeper or citizen classes?—They are mixed.

3729. And even the shopkeeper classes have not objected to their boys being taught as carpenters?—No one has objected, shopkeepers, clerks, or middle class people.

3730. You think as a general rule they like it?—I think they do.

3731. Most Rev. Dr. WALSH.—Do you think the Birmingham people generally understand what is really done in the schools in this department: they understand that you are not teaching trades, or even the principles of any particular trade, but the general principles that underlie all trades and occupations?—I think they do very clearly.

3732. And the fact of their understanding this enables them to see the advantage of the work you are engaged in?—I think so.

3733. And it would prevent their objecting on any such absurd grounds as that they did not want their children to be taught this trade or that trade?—I suppose they must understand it in that light, for they do not object.

3734. Drawing is rather popular?—Very popular.

3735. And the hand and eye training and manual training?—Yes, that is also popular.

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3736. Is it as popular among the pupils as among their parents. Do they like it?—I think so.

3737. You have never tried whether it would serve as a punishment to exclude them from the hand and eye classes. It is done in Sweden?—I think it would be considered a punishment, but I should think it an objectionable form of punishment, and one I should not think of adopting myself.

3738. But you consider the children have taken to all this kind of school-work so eagerly that they would regard it as a punishment if they were excluded?—I think so.

3739. Is drawing taught directly in reference to constructive purposes. I mean the drawing simply of plans and elevations without reference to perspective. Take that ink bottle there. Suppose a man came here and said he would like to produce an ink bottle like that. I suppose the drawings he should take would be an elevation and a plan, without any reference to perspective. Is drawing of that sort taught in the schools here?—Yes, it is.

3740. That is, drawing from objects by plan and elevation?—Yes, there is very little perspective in a model of that kind.

3741. No; but there is some. But in any case, they are taught to draw without reference to perspective. I take it if they were to make a working drawing, perspective would be rather in the way?—Yes, it would; but in model drawing we must recognise the principles of perspective. We cannot draw models without it.

3742. Captain SHAW.—Is not that taught with the manual work; in that case they do draw simple plans and elevations?—Yes.

3743. And was it not part of the course formerly for drawing in the sixth standard?—Solid geometry was.

3744. That consists in drawing plans and elevations, and simple solids without perspective?—Yes.

3745. Most Rev. Dr. WALSH.—Do you agree with me that the teacher's certificate merely guarantees the teacher's power of drawing, that he is able to draw, but not that he is able to teach drawing?—It is not a guarantee of that.

3746. Is not that true of other subjects as well as drawing: when a teacher comes out of a training college certified to teach in a school generally, does the certificate guarantee that the teacher has the power of teaching, or does it guarantee merely that the teacher has learned the subjects?—It applies all round to every subject. You can have no guarantee until you have had some experience

3747. Do they get no training in methods of teaching?—Yes, they have a practising school in connection with every training college.

3748. So in addition to teaching the subject to the Queen's scholars, the training colleges teach the Queen's scholars how to teach those subjects?—That is so.

3749. For other matters, but not for drawing?—They might and might not; it all depends on the kind of Model school.

3750. Then in England, at all events, it is not looked upon as a very important part of the work of the training college, not merely to teach the subjects to the Queen's scholars, but to teach the Queen's scholars how to teach those subjects?—I take it that the time the Queen's scholars spend in actual teaching is not sufficient to enable them to get a practical knowledge of teaching

3751. How long do they spend at it?—They spend two years in the training college at least; but the time they spend in the practising school would not exceed four or five weeks per year.

3752. Do you not consider that that side of the work of the training college could be developed with great advantage?—I think it might be considerably extended and developed; I for one should like to see more time given to actual teaching in the schools, so that when the teachers came out they would be able to fall into the work with ease.

3753. And this applies to all the subjects?—To all the subjects, more or less.

NINTH PUBLIC SITTING—SATURDAY, MARCH 20, 1897,

AT 10 O'CLOCK, A.M.,

At the Examination Hall, Victoria Embankment, London.

Present:—The Right Hon. the EARL of BELMORE, G.C.M.G., in the Chair; His Grace the Most Rev. WILLIAM J. WALSH, D.D.; The Right Hon. C. T. REDINGTON, M.A.; The Right Rev. Monsignor MOLLOY, D.D., D.Sc.; Rev. HENRY EVANS, D.D.; Rev. HAMILTON WILSON, D.D.; Professor G. F. FITZGERALD, F.T.C.D.; STANLEY HARRINGTON, Esq., B.A.; W. R. J. MOLLOY, Esq.; Captain T. B. SHAW; and J. STRUTHERS, Esq., B.A.;

with J. D. DALY, Esq., M.A., Secretary.

London.

March 20, 1897.

Professor H. E. Armstrong.

MR. HENRY E. ARMSTRONG, Professor of Chemistry in the City and Guilds of London Institute, examined.

3755. CHAIRMAN.—I believe you are Professor of Chemistry in the Central Technical College?—Yes; of the City and Guilds of London Institute.

3756. And I believe that you have taken special interest and a very active part in the introduction of the teaching of science into schools?—Yes.

3757. Would you tell us a little in detail what you have done in that way?—I have long been interested in the subject; but I first took public action in connection with the matter, I think at the Health Exhibition which was held at South Kensington in 1883. An important educational conference was held on that occasion, and I then put forward my views more particularly on the subject of science teaching. A couple of years after that a highly representative Committee was appointed by the British Association, which sat during three years and collected a large amount of evidence and information regarding the teaching of science in schools: and what was of primary importance, that Committee put forward a rather comprehensive scheme for science teaching in schools.

3758. Whom did the Committee consist of?—The Committee was a very large one. It included Sir Henry Roscoe, Dr. Gladstone, Mr. Stallard, Science Master at Rugby, and a great many others. I can give you the exact particulars, but I have not them in my memory at this moment. Then I may say I have taken every opportunity since of interfering in this matter, because it is one of those things that one has to interfere in, so to speak. One has to take action rather against the will of those who are doing the work than with their assistance or at their invitation. At present educational bodies are having their hands forced to introduce rational methods of

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teaching, and they are not themselves inviting assistance. That is an important point to understand—that nearly all the improvements that have been introduced, whether by the Science and Art Department or the School Boards, have come from outside of late years, and are due to the activity of interfering people like myself who have taken a keen interest in the subject, and have tried to force on the improvements.

3759. What are the objects to be attained by teaching boys and girls science?—The main object we have had in view has been to put an end to the old system of lesson learning by rote, didactic teaching I may say, and to introduce methods which would tend to the formation of character and the acquisition of habits by the students, rather than the mere acquisition of knowledge of facts.

3760. What is your opinion as to the importance of commencing such work from the outset and pursuing a graded course?—I attach the very greatest importance to that. There is not the least doubt that children very soon learn that it is a very easy thing to learn lessons from books. They soon acquire the habit of reading books and of picking up information, and it becomes very difficult indeed to induce them to take trouble themselves to acquire information at first hand and to think about the work they do. They also soon get into the condition of adopting other people's opinions. Also I should like to point out that one great difficulty of the present day in regard to all modern teaching is, that the tendency is to produce a clerkly class. The teaching has not been practical, and in consequence of a certain amount of literary training being given and no practical training—no training which would have had the effect of making them fonder of practical work than of literary work—we are, I am sure, producing an enormously disproportionate number of boys and girls who are prepared to do desk work but who are not prepared to use their hands in the way their fathers and mothers did before them. The one great object we have had in view in this modern work has been to introduce more practical teaching, and not only to cultivate the faculties which are cultivated by literary training, but especially the use of the hands, the eyes and the mind in conjunction.

3761. What is your opinion of mere object lessons in specific subjects?—I think that these as provided—at all events in our English Code at the present time—are doing the most serious injury possible. Nearly all the specific subjects that are taken cannot be taught scientifically in such a way as to form character. They are taught merely didactically. The students are made to follow certain lines laid down in text books. They are crammed to pass a particular examination, and most serious injury is being done in that way, because time is thus taken up which would be more usefully occupied, and no good is done. I am satisfied that science is not taught through any of the specific subjects, and that they do not provide a graded logical course of instruction.

3762. Will you explain what you mean by a graded course?—I mean a course in which first principles are gradually discovered and laid down, in which students are gradually led on from one thing to another, so that they acquire what one may term a general knowledge of scientific method. I should like to point out, with regard to this question of specific subjects, that the "Joint Scholarships Board," which has been established within the last couple of years in London, and which is an exceedingly representative body, including representatives of practically all the important secondary schools and county councils and a number of other educational bodies, has addressed to the Vice-President of the Council on Education, through an executive of which I was a member, a memorial on this subject, in which they very strongly urged on the Vice-President, if not to abolish the specific subjects from the schedule, at all events to give such directions as would lead the Inspectors to call particular attention to the importance of making use of the course known as "Course H," which is now in the Code, and which has been drafted on the experience gained more particularly by Mr. Gordon and Mr. Heller under the London School Board. That letter was communicated to the *Times* by Sir Philip Magnus, who is the Chairman of the Joint Scholarships Board.

3763. Professor FITZGERALD.—The specific subjects are electricity and magnetism?—Yes, and heat and light, and especially agriculture. That is one of the greatest offenders in the Code, because young children are asked to learn things and answer questions which are beyond people with cultivated heads on their shoulders, and considerable experience of the world.

3764. Monsignor MOLLOY.—And the children do answer them out of books?—If they answer them at all, they answer them merely because the answers have been prepared for them in advance.

3765. CHAIRMAN.—And they learn them by heart?—Learn them by heart entirely, not practically. Our object has been to induce a very great simplification of the Code—to start from very early beginnings and gradually work up. The course is given; it was introduced first of all in detail into the Evening Continuation School Code. and it is now in the Day Code both for boys and girls this year, or rather there is a very similar course—Course H. That is a course which has been practically worked out more particularly in the schools in a district which I believe you have visited already—in the Tower Hamlets district. It has not yet been applied throughout the London district.

3766. What is the possibility of making such instruction adapted to particular requirements?—I think that that in the hands of competent teachers is quite a possible thing: that when the principles on which such teaching should be given are once established it will be possible to greatly vary the method of instruction—that is to say, to take local examples, so to speak. In agricultural districts, for instance, it would be quite possible to frame a course in which a totally different class of work was done, in which totally different examples, more suitable to the requirements of an agricultural population, were worked out, and in the case of a district in which a particular manufacture was carried on, such things would be possible. I believe that that kind of thing can be done to a very considerable extent, although, of course, it must not be done to such an extent as to make the instruction what is nowadays called technical. There must not be any attempt made to lay down rules for technical guidance. The whole object must be to develop the minds of the students, but it can be done I believe in very many cases by local examples; and in the case of girls, for instance, it can be done entirely or almost entirely through domestic matters I think.

3767. In fact, not to teach a trade?—Certainly not.

3768. Is there a need of properly trained teachers and also of competent inspectors and assistant-inspectors who can help the teachers?—An absolute need. They practically don't exist at the present time. Not only do not the teachers exist, nor the inspectors, but there is no method of getting them trained. The whole system is in a state of chaos. In fact, there is no system at the present time. All our teachers and inspectors and everybody concerned have received a training of a wholly humanistic type. No attention has been paid to what Mathew Arnold called "realities." The inspectors are all either men who have had a purely classical training at the universities, or they have been retired engineer officers. I believe that is practically true. Until the Science and Art Department recently introduced a new set of inspectors, we have not had any men acting as inspectors who had received a scientific general training.

3769. How would you obtain a supply of inspec-

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tors who have received such a training?—We have got to organise the whole system from top to bottom. You cannot say at present where you would get them.

3770. Would you have to invent some system to train inspectors?—We would certainly need to have a proper system of training introduced into our colleges and training schools.

3771. Do you think there is any need of competent advisers for school boards and to the Educational Department, or do you think there is need of an independent educational council?—The present position is this—I believe there is scarcely a School Board in the country which can be said to be competent to undertake the control of education at the present moment. That may be illustrated with reference to the London School Board. Dr. Gladstone, who was for many years a member of the London School Board, was the only representative of this subject—I don't say scientific methods—on that Board. Dr Gladstone retired a year or two ago, and there is not a single person on the London School Board at the present moment who can really grasp the meaning of many of these questions that are put forward. The introduction of this work into the London School Board is entirely the result of an accident. It has been forced on the Board, and arose from Mr. Gordon's appointment a few years ago.

3772. To what office?—The office of Demonstrator under the School Board. Mr. Gordon was appointed rather on my suggestion, for I saw there was an opportunity. He was appointed to teach under one of the most absurd syllabuses possible, the mechanics syllabus. He devised a syllabus of his own which was a very great success in his district, and its use has been continued by Mr. Heller with very great success, and it has been introduced by Mr. Gordon into a most important district, the Manchester District.

3773. Most Rev. Dr. Walsh.—Is this the Mr. Hugh Gordon who has written a book on elementary science?—Yes.

3774. Chairman.—He has been removed to Manchester. He is one of the Inspectors under the Science and Art Department?—Yes.

3775. Most Rev. Dr. Walsh.—Was he a teacher?—He was the man who started this work under the London School Board, and it is wholly due to the fact that he was successful that this work was brought into prominence. The Board did not contemplate anything of the kind. Its introduction was due to the mere accident of a competent man seeing his opportunity and coming forward and taking it.

3776. Chairman.—Cannot you tell me what leads one school, such as we saw yesterday, to adopt a science class and another school to not doing so?—The London district is divided into four, and there are four science demonstrators I think.

3777. Five, I think, I am told?—Well, four or five, they each influence the district under their control. Mr. Gordon, having a district under his control, was able by example to influence the teachers and gradually to lead them to introduce rational methods. What Mr. Gordon did, and what Mr. Heller is doing, was not to act as instructor or inspector but to act as teacher of the teachers.

3778. It depends upon the accident of a particular person being the organiser of the district where the science work is carried on in the schools of the district?—Entirely so. The London School Board have not themselves the faintest appreciation of the work they have done. I venture to say they are incapable of appreciating it, because these matters cannot be understood by the general public. It is only those who have done the work and had thorough training in this kind of work who can really appreciate the change that has been brought about. If you allow me to say so, the educational policy of nearly all the school boards is dominated by the clergy, and as the clergy have for the most part received a purely classical training, the whole subject has been looked at from that point of view. We have introduced a rather different point of view and with every desire to appreciate it, it is practically impossible for those who have not worked in this direction to realise what is being done.

3779. There is one other point upon which we would like your opinion, and that is with regard to the equipment of schools?—There is no doubt that in that direction it is very important that the public should be led to see that a great deal has to be done in equipping schools for work of this kind. It cannot be done with the ordinary desk appliances, but at the same time I should like to insist that, whatever is advocated in that direction, the rules for equipment should be made as elastic as possible. I will give you an instance of what I mean. Infinite injury has been done to the teaching of science by the Science and Art Department laying down a hard and fast rule for the provision of a certain number of sinks in every laboratory—one between every two workers. That has led to an exceedingly expensive form of construction that is quite unnecessary. One sink is quite enough for a considerable sized room in practice. The presence of sinks leads to a great deal of mess on the benches, and if there had been no such regulation laboratories would have been fitted up at small cost over and over again. These hard and fast rules may do a great deal of injury. They are laid down with the best intentions no doubt. All that is needed is that people should be prepared to face the expenditure necessary in matters of this kind. One matter of course is all important, to which I have drawn attention over and over again, and which it is very difficult to enforce, and that is the absolute importance of having proper balances provided for this work. The great feature of the work is the introduction of exact methods of measurement, especially in connection with weighing. Everyone knows the difficulty there is in a domestic establishment of getting the cook or even the mistress to appreciate the importance of weighing materials for making a pudding, and so on—now we are very anxious to have exact measurement work carried on for so long a time that the habit of weighing and the habit of weighing carefully, in the case of girls especially, shall become a fixed habit. For this purpose, you must have proper instruments, and this involves an expenditure which those who have to do with elementary instruction don't like to face. The argument is used that you are using a class of instruments altogether above the needs of those who use them. Those are points on which the public require a good deal of instruction.

3780. Are there any other general observations you would wish to offer to us?—I don't know that there are specially.

3781. Professor Fitzgerald.—I want to ask one or two questions. You stated that the object lessons at present carried out were not educationally useful. Have you any suggestions as to what could be done in the first, second, and third standards as an introduction to experimental work?—I don't, of course, say that some good is not done by object lessons, but the form of the lessons might be considerably modified so as to make them very much more useful than they are at present. What I think is required is rather the study of objects by the scholars than the statement by the teacher of what the objects are. That is what object lessons mean at the present time—holding up objects and describing them to a class and telling the class about them. Our point is that the pupils should, themselves, as far as possible find out everything about the objects put before them.

3782. Then your objection is not to object lessons as such, but merely to the way in which object lessons are at present carried out?—Quite so.

3783. Do you not think that one of the causes of the wrong method is having examinations of the children in the object lessons?—I don't think there ought to be any examination of the children until they are leaving school, even if there is one then.

3784. You think it would be better to have nothing but inspection going on?—I should inspect the teachers, practically.

3785. With the proper inspection of the teachers you think the object lessons would, probably, be important?—Most certainly.

3786. Your objection to the specific subjects mentioned here is largely founded on the fact that they were drawn up by people who thought that information was the great end of education?—Yes; but question whether you can, by many of these subjects, give the necessary training in method that is wanted.

3787. But still you think that there might be a number of different lines upon which codes might be framed differing from this particular Code that is here?—Oh, yes; I think that that Code might be very greatly varied, but I do think you must start with elementary measurement. Whatever you do, you cannot get away from that.

3788. Do you think it is more the form of the system than the matter of the system that is of importance?—Entirely.

3789. But that the matter must be varied from place to place so as to suit local requirements?—I think it might be largely varied.

3790. And in the case of girls it might run largely in the direction of domestic economy?—Yes, so long as you avoid doing what is at present done. Teaching a set of girls domestic economy at present means teaching a set of rules. We want to get boys and girls into the habit of learning how to help themselves.

3791. The form of the system is to use familiar things as a means of training them in scientific methods?—Yes.

3792. That is to gain information from their observations and from experiments?—Yes.

3793. Is there any place where we could get a short exposition of the principles of the system?—I have myself written a good deal on the subject at various times. I can supply the members of the Commission with some pamphlets.

3794. The principal thing is to have it put on record where the information is to be got?—As regards the teaching of my own subject, a book has been published only this last week in which I have very fully discussed the programme that was laid down by the Association of Head Masters: it is called the "Aims and Practices of Teaching," by Professor Spencer, of Bangor University. It is a series of chapters by a variety of writers.

3795. You have had some experience of youths coming up to you who have been educated on the old lines without scientific training?—Yes.

3796. You do not find that that is satisfactory?—We find that the majority of students are almost hopeless when they come up to colleges like ours. They have never learned to help themselves in any way, and they have so got into the habit of using books that they almost decline to help themselves to information. The more intelligent they are the greater the difficulty. The weakest students, as a rule, are the best students in many ways. They are willing to try to learn; but those who have learned to use books, and know how easy it is to get information from books, will not be at the trouble to learn how to help themselves except through books. Nothing is more striking than the way in which the students from our schools at the present day have got into the habit of relying on books.

3797. CHAIRMAN.—In fact those who have nothing to unlearn are the best?—They are by far the best—the students that are coming up from the elementary schools and the schools of lower grades, while the worst students are those who come from the public schools.

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3798. Professor FITZGERALD.—You find them wanting in observation and the power of reasoning from observation, and in intelligence in testing observation?—Everything of that kind is absolutely strange to them.

3799. They cannot even carry out directions?—They are perfectly incapable of doing so. They won't take directions. The absence of discipline is the striking thing in the English student. That is where the Germans are so much ahead of us, for in some way or other they manage to infuse a system of discipline into their schools.

3800. We were in Birmingham the other day and saw a good deal of the woodwork and practical applications of dexterity and accuracy. For instance, ordinary woodwork encourages accuracy in measurement, and a certain amount of dexterity; so children trained in that would be able to carry out directions and able to measure; but the training in woodwork gives no training in experimental methods?—The great advantage of scientific work, and especially of my own subject, if I may be allowed to say it, is that you are able from step to step to devise new experiments with the object of testing the conclusions arrived at in previous experiments, and so carry on a logical process.

3801. There is nothing of experimental testing of the conclusions arrived at in the ordinary manual training?—No, that is the great difficulty in manual training. It certainly does teach measurement and exactness, but it does not develop habits of mind.

3802. Observing things and verifying things. It does not teach you to learn from things?—No.

3803. In fact it does not teach scientific habits?—None whatever, beyond the habit of being exact about a piece of mechanical work.

3804. Mr. HARRINGTON.—Is there any evidence that boys who pass through a school where science is taught, as it is, for instance, at the Rutland Street Board School, are more observant and accurate than boys who have not been at such schools?—I cannot give it myself, but I believe such evidence is forthcoming. But I have had it in the case of higher class colleges—for example, St. Dunstan's College, Catford. That school is working on rational lines, and the difference between boys coming from that school to our college and boys coming from other schools is perfectly marvellous.

3805. Mr. STRUTHERS.—Your evidence has been about scientific teaching. Do you mean to criticise the *general* education in such subjects as reading and writing?—I think the whole of education is unscientific. I am an advocate, not for teaching science, but for teaching scientifically.

3806. Then your observations apply to other subjects than science?—Entirely.

3807. But in order to have this reform in the other subjects, we ought to begin with the teaching of science?—You cannot get it in any other way. You cannot make the teaching practical through any other subject.

3808. You expressed some rather sweeping opinions as to the character of the education given in these schools. May I ask you how you formed those opinions?—What schools?

3809. You spoke of the general character of the education?—I have twenty-five years' experience as a teacher.

3810. As a teacher in elementary schools?—No, understand me. I have nothing to do with elementary schools, except indirectly. I have had to do with students of all grades. When I was a Professor at the Finsbury Technical College I had a great deal to do in evening classes with students of the class who are trained at elementary schools, and in that way I have come fairly into direct contact with elementary schools, and then I have of late years seen a great deal of elementary schools in connection with Mr. Gordon's and Mr. Heller's work.

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3811. You have visited those schools?—I have frequently been in contact with them.

3812. Have you inquired into the teaching of other subjects?—Yes.

3813. By personal inquiry you have tested the children's knowledge or power of thought in such subjects as arithmetic?—I have seen a great deal of that.

3814. And how they were taught English composition?—Yes.

3815. You have also inquired into the methods of teaching grammar?—Yes.

3816. And may I ask you what opinion you formed?—The opinion I formed is that in many cases the teaching is remarkably good from the point of view from which it is given—in fact admirable. It is wonderful how much information is imparted to many of the children. But they can only reproduce their knowledge mechanically—they cannot make use of it.

3817. You found that by actually testing the children?—Yes; and that I know is now the general complaint of schoolmasters who, under the system of scholarships, are receiving boys from elementary schools into higher schools.

3818. But you know it is rather the habit of masters who get pupils from other schools to complain in general terms as to the bad education of the pupils before they received them?—They don't complain of the bad education. They say in many cases it is very good, and that it is quite remarkable what an amount of information they have got, but it is mechanical.

3819. Then the special object of the teaching of science on the course you advocate is to train the intelligence of children?—Yes, to break down the present purely mechanical system.

3820. Of the teaching of science?—Of all subjects.

3821. Don't you think that intelligence can be trained by the teaching of grammar?—Only one side of the intelligence, not the whole of the intelligence.

3822. What side different from what is trained by taking children over this Course H.?—Well, the whole of the practical side. The use of the hands in conjunction with the eyes and mind.

3823. But that use of the hand and eye can be got by manual training?—No, not the reasoning.

3824. The reasoning is got by the teaching of grammar?—No, it is not. Not in connection with outside natural phenomena. It is introspective, that kind of training.

3825. Words and English sentences are outside natural phenomena?—The training in grammar is a training which may be called introspective, and does not direct the thoughts outwardly.

3826. But all reasoning in that sense is introspective?—In a sense it is.

3826A. I mean to say there are only two points, observation of outside things, and reasoning from them. We can get the observation and the exact measurement by hand and eye training, and you have the reasoning from them equally developed by the teaching of grammar?—There is no connection between the two.

3827. Professor FITZGERALD.—May I ask Professor Armstrong whether he thinks children can make experiments in grammar?—That is the whole point. You see something happening, and you want to find out what is happening, and you devise an experiment, and that experiment gives a result which by a process of reasoning leads you to——

3828. Mr. STRUTHERS.—There is such a thing as correct writing of sentences?—I don't think it has any educational effect.

3829. Professor FITZGERALD.—Is there not an important distinction between words and things in every individual's mind, and therefore dealing with words is a different education than training them how to deal with things?—Very different indeed. May I give this instance which is on your point. My first idea of this class of work was got from Trench's "Study of Words" when I was quite a lad. I can refer my scientific tendencies back to that kind of study, but they would never have been developed if I had continued on a literary track.

3830. Mr. STRUTHERS.—Of course I am not controverting the opinions you express. I merely wish to make out what precisely is your idea of the different effect on the reasoning faculty of this kind of training from that given by grammar?—I quite understand that.

3831. Then you spoke of specific subjects. Of course specific subjects are not merely scientific subjects, such as mechanics and agriculture. They include such subjects as French and German?—I was referring of course to specific subjects in science, not specific subjects generally.

3832. Then would you confine the science teaching in schools to the course prescribed under head H?—I thought I fully made it clear that I would not. So long as the principles involved in that are carried out I don't desire for one moment to confine it to one special course. On the contrary, directly you get good teachers the more latitude you give your teachers the better.

3833. Then there is a course, I understand now, in the Code similar to this Course H, prepared for girls especially?—I think it is there under the name of domestic science.

3834. Could a similar course be framed, do you think, for rural schools, based more or less on agriculture?—Yes. I discussed that in one of these pamphlets—"Science Teaching in Agricultural Districts, a lecture addressed to the South Eastern Agricultural College, by Professor Armstrong."

3835. Then in order to teach science effectually on the lines you advocate, I presume a different course of training for teachers must be adopted?—Yes.

3836. So a considerable change in the present method of training teachers in training colleges must be introduced?—Yes, that is acknowledged. I believe there is a committee sitting on that at the present moment.

3837. But take the teachers who have passed through training colleges—what hope is there for them?—I am afraid there is not very much; I have had classes of elementary school teachers at the Central College on several occasions. They have taken the keenest interest in this work, but it has been almost impossible to get them to do anything but look on with their hands in their pockets. They have become incapable of working experimentally. They have the greatest appreciation of the work, but they have so got out of the way of helping themselves that they cannot be got into the way. I have told them so myself at the end of the class, and they have acknowledged such to be the case.

3838. They cannot measure accurately, or what?—Oh, they cannot enter into the spirit of the work.

3839. CHAIRMAN.—Don't they when teaching their class have to show the pupils how to measure?—Practically, no.

3840. Mr. STRUTHERS.—Then I suppose the training of inspectors is equally hopeless?—You must do what you can to fill the void, but I don't think it is a very hopeful process.

3841. Then in order to have effective inspection you would require to appoint a totally new list of inspectors?—I think you want an addition to the present staff of inspectors. I believe the Educational Department at the present moment has only one man in its service who can deal with this sort of subject, and he has distinguished himself, I believe, by insisting that science shall not be taught in the schools under him because it cannot be properly taught. That gentleman was in Wales, but I believe he has lately been transferred to Leeds.

3842. You know the others sufficiently well to say that they are not capable of doing the same?—I don't make that statement in detail, but I know that is the general position, and I don't think the statement can be very seriously challenged.

3843. Then about these object lessons, you said they should be made a means of making the pupils think for themselves. An object should not be held up and described for the pupils, but the pupils have with the object before them, to find out certain things for themselves. Is not that the recognised principle of all object lesson teaching now?—As far as the schools I know of are concerned, no doubt that is a fundamental principle of such teaching and one which is pretty universally recognised.

3844. In connection with what objects?—We don't always find it done, but that is what is considered the recognised object.

3845. What class of objects would you be dealing with?—A flower perhaps. In teaching botany there is no doubt that is the recognised principle. The children are taught to dissect flowers occasionally; but I was not quite thinking of botany, and that is not what is generally understood I think by object lessons. The way in which I should start object lessons would be by collecting anything and everything that could be collected, and get them into the habit of examining and describing the objects. I have done it with children starting from five years on. They can be led, for instance, to pick up stones on the sea beach and try with a hammer whether they can be easily broken.

3846. They probably do that without any teaching?—Not for long, and they don't get into the habit of doing it with things generally. What we want to teach pupils is to examine anything that comes into their hands, to get into the habit of doing it, and not because they are taught to do it in school.

3847. CHAIRMAN.—Would you give an illustration so that I may follow you? Supposing you took a pen and wanted a child five years old to get a proper object lesson as regards that pen, what would you do?—I think that is too complex an object. I would rather give the child an iron nail, or something of that kind, and also give an elementary anvil and hammer, and let it find what it can do in the way of beating out the iron nail, and then compare it with other metals—lead, and so on.

3848. How is the child to know the distinction of the metals?—Give the child the object, and tell it to try what it can do by beating it out.

3849. Must you not tell the child this is lead or this is iron?—Oh, dear no. Give the child a set of pieces, and let the child give you a statement of what it has discovered in reference to them.

3850. Should not the child have some idea put into its head as to the distinction between the metals?—It would not require it. If you tell a child to collect all the different kinds of metals it can, nails, and so on, and then say, "Try what you can do with a hammer by beating them, and describe their colour and the effects you produce." I would always recommend a common kitchen flat iron and hammer, which are domestic implements, for the purpose. "Take different substances and see if you can pound them easily." Many object lessons can be given in that way. Or you can tell the children to try with their pocket knives whether different kinds of wood are easily cut or cut with difficulty.

3851. Mr. STRUTHERS.—You would not give the child a general idea of nails to begin with?—I would not.

3852. He must understand what you mean when you say, "Collect different kinds of nails"?—I think most children understand that as soon as they begin to speak.

3853. If you ask children to collect a certain class of things they must instinctively, or by your telling them, know what the thing is?—I don't mean that everything can be evolved out of their inner consciousness. You must tell them something, but it should be the minimum.

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3854. You recognise the humanistic training as of certain value?—Very great value.

3855. Would you state what you consider the difference between that training and the scientific training you advocate?—There is a side of the mind, a practical side, having reference to external phenomena which cannot be trained by humanistic training—by devotion to books. What we advocate is the practical introduction to practical methods in place of book knowledge—the mere imparting of knowledge of facts. It is the knowledge of facts derived by direct study instead of from other people that we aim at.

3856. But you don't recognise any different process of reasoning exercised. The process of reasoning no doubt has reference to different sets of objects, to different purposes, but it is the same process of reasoning?—I am not prepared to go into a psychological discussion. It is very probably the same process.

3857. Captain SHAW.—Do you consider that the teaching in these fifty schools in Tower Hamlets has been successful?—I think a very successful beginning has been made; I don't think we can say more than that. The experiment has been carried on sufficiently long to show that we are on right lines on the whole, but it has been carried out only by one man trying to educate a set of men who have not been previously trained to do such work.

3858. Do you consider that any of the teachers are capable of working scientifically?—I believe a number of the teachers have become very much interested in the work.

3859. Do you consider they are capable of giving the instruction which is necessary?—I can't say that. It would not be fair for me to give an opinion on that. I think these are matters on which Mr. Gordon and Mr. Heller would give a definite opinion.

3860. Would you allow some teaching to be given which is merely the imparting facts to children?—Oh, certainly.

3861. How much time would you give to methods of observation and how much to the acquisition of facts?—I would in the first instance teach the children for a considerable time how to do, and when they have learned method begin to teach them didactically what has been done. The mistake is first to teach them didactically what has been done, as they then become unable to help themselves. With many students I have an increasing difficulty every year to get them to learn intelligently.

3862. How many hours a week, if we were going to teach experimental science on these lines, should be devoted to it?—You ought to have at least two lessons—two-hour lessons a week—and that ought to be work entirely done by the children themselves. There ought to be no lecture or anything of the kind.

3863. Do you consider the students, when they have arrived at the seventh standard, can begin to learn specific science—take up chemistry for instance?—Oh, yes, certainly. Of course what I say is with regard to the earlier standards.

3864. With regard to the "H" syllabus, the syllabus begins with the fifth standard: would you like it to be introduced lower down in the school?—Yes, I think it ought to be. The first thing we have to do in future is to make the teaching of arithmetic practically the first stage of that work. Mr. Gordon has so introduced it. The first stage is nothing more than arithmetic carried out in a practical way with the aid of squared paper, and that ought to be done as part of the ordinary arithmetical teaching and not as part of the science course. In that way we ought to begin at the very beginning.

3865. Would it be a practical thing to introduce this style of instruction by one person, if you could find one who has got the spirit, in charge of a large district, and trust to his inspiring the teachers in time?—The success that has been achieved in one district shows that it is possible. It is the only way we can do it at present.

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3866. You condemn the mechanics syllabus in the Code. Is that the same one you condemn that Mr. Gordon started?—I don't think there has been much alteration. Mechanics came in in an accidental way. It arose merely through appointing an engineer to carry out this class of work. It was the one subject he could teach when he became a demonstrator under the London School Board.

3867. Chairman.—A civil engineer?—Yes, I think so.

3868. Captain Shaw.—You don't know where the syllabuses came from that are in the Code?—The Code syllabuses, I should think, would be largely modelled on the South Kensington schemes.

3869. Not the mechanics, I suppose?—I don't say the syllabuses as a whole. I suppose the first man who was appointed demonstrator was probably largely responsible for the mechanics, and it was perfectly rational from the point of view that prevaded at the time. I don't know that any particular objection could be taken to it.

3870. Do you know the particular course of object lessons that Mr. Hewitt has instituted for the Liverpool School Board?—No, I don't.

3871. They seem to me to be practically on the lines that you advocate?—I think they are all coming round to this view now. There has been an approach to the same point of view going on during the last seven years. Mr. Hubble, for instance, has recently published a book—he is one of the demonstrators—and there he talks about it as being a book in which the new method is developed. It is very interesting as showing that he has become a convert. But he has by no means succeeded in taking to it entirely. He has not yet entered fully into the spirit of the work.

3872. Mr. Molloy.—Do I understand you to say that Mr. Gordon added the syllabus to his plan?—His syllabus was put in the Evening School Continuation Code originally, and it is now in the Day Code, and he has published a little book.

3873. Captain Shaw.—There is one question I should like to ask you as to the names you give in chemistry which have been greatly objected to?—Yes, by Captain Abney particularly.

3874. Is there any reason why children should not learn at once the generally accepted name?—Most certainly, when a name is given which discloses all the facts.

3875. It has to be unlearned afterwards?—I don't think it has. We are only adopting a method which has been adopted by a large part of the scientific world. When you call hydrogen hydrogen you are doing in Greek what we are doing in English.

3876. If a child only goes as far as your course he knows "inflammable air," but he may never recognise it as hydrogen afterwards?—I don't think that matters at all.

3877. Mr. Struthers.—I think I heard water described yesterday as rust of hydrogen?—I have called what is commonly known as carbonic acid "chalk stuff gas." We start with examining the chalk and get the gas. If you tell a child that is carbonic acid it completely discloses the nature of the gas. We discover what the gas is and do not take it for granted, and it is from that point of view that I insist upon the importance of these names.

3878. Rev. Dr. Evans.—Do you draw a distinction between oxide and rust?—I don't speak of oxides at the beginning. The first thing we take is the study of iron rust.

3879. By using the word rust do you wish to avoid oxide because it is hard, or that it is not sound doctrine?—Simply because it involves knowledge which the child is not in possession of at the time. As soon as it has discovered that it is an oxide you can call it an oxide.

3880. Mr. Molloy.—About how many schools are there in which your system is carried out?—I really don't know.

3881. You have not seen any time tables of the practical working in those schools?—You mean in the London district. I think it is carried out in a large number of schools in one particular section. I don't really know how many that includes. It includes a a couple of dozen or more.

3882. I think a while ago you deprecated the idea of syllabuses. How is Mr. Gordon's syllabus free from objection?—You must put forward something to guide teachers. If you have an examination system as at present, there must be something put forward to guide them. If the examination disappeared it would not be necessary to have syllabuses provided the teachers were fully competent.

3883. About what time in the week would you give to your subjects as part of the ordinary subjects—you say two hours would be sufficient?—Two two-hour lessons.

3884. Rev. Dr. Wilson.—As an example of your system you say you wish to make arithmetic practical. How would you propose to accomplish that?—I should set them to work with a measuring tape and a foot rule, and take measurements and work those out, instead of taking problems from a book to begin with.

3885. And so on to the further subjects?—Yes.

3886. How would you do addition, for example, or subtraction?—That could be done by counting the squares on squared papers. If you take Mr. Gordon's little book you will see how this works in practice. He has laid down rules there.

3887. Monsignor Molloy.—You have spoken chiefly I think of the teaching of elementary science in schools?—Yes.

3888. What is your opinion about the teaching of drawing in primary schools?—I think it is of very great importance; what we have been contending for—and if you have seen the recent report of the Committee of the Technical Education Board, you will see it has been put forward there—is, that the classes should run together. That the science lessons should include literary work and drawing. Whenever an experiment is done involving the use of any object which can be drawn, that object should be drawn at the same time. Instead of drawing being carried out from set models and copies, every thing that is made use of should be drawn. Children should get into the habit of drawing things that come before them.

3889. Then you are in favour of having drawing taught in primary schools?—Absolutely.

3890. Do you think it is desirable also to have some form of handicraft or manual work, over and above the practical work of the laboratory?—Yes, I think that is very valuable.

3891. You would apply to this teaching the general principles that you have stated with regard to the teaching of elementary science?—Yes.

3892. There have been two ways of teaching elementary science: one is to communicate the facts and general principles, and illustrate them by experiment; the other is to get the children to work out the experiments themselves, and, as it were, discover for themselves what the scientific principles are. Are you entirely opposed to the first way?—Entirely for young children. I think they learn far too much in the way of knowledge of facts.

3893. Can you state briefly what is your objection to the first system?—It is simply piling more knowledge into the knowledge box.

3894. Is knowledge an objectionable thing?—I don't think it is objectionable if you know how to use it. That system is a system which does not make knowledge permanent knowledge. It is only retained for a short time. I suppose most of the gentlemen here are acquainted with this interesting report of the Recess Committee. There are several very admirable illustrations in that. You will find one at page 94. There is a foot-note there which

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applies to this very point. (Reading).—"The effect of actual work on the memory is astounding. To look in at the stall when the cattle fodder is being mixed is very different from helping to mix it; to loiter in the field while the couch is being worked out and burned, is very different from taking a fork and assisting for an hour in the work." That involves the whole principle.

3895. What I want to know is, do you object to children acquiring any knowledge except what they acquire for themselves?—I don't object, but I say they don't acquire useful knowledge under the present system.

3896. Then do you think that any knowledge they gain which they don't discover for themselves, is of no use?—Of course one could not go so far as that.

3897. I understood you to recommend practical work in the laboratory, not merely for pupils who are intended for a scientific career, but for all pupils?—For all, and especially for girls

3898. And you recommend it for its educational value?—Yes.

3899. CHAIRMAN.—Why for girls especially?—Because I think girls want such training more. The man who goes into the world gets such training in the course of his work much more than the woman, and because I think we break down domestically to a very large extent from our absolutely unscientific way of doing things.

3900 Monsignor MOLLOY.—Can you put in a short form the educational value you attach to this practical work in the laboratory?—I hold it teaches people to use their wits. That is about the shortest way of putting it.

3901. In a system of education the faculty of expression, the power of language, is an important element?—Very important

3902. Do you think there is any danger of this faculty suffering from too much time being given to practical work?—Absolutely the contrary. If you ask a lad coming from any of the public schools, or almost any school, unless he happens to be an entirely exceptional one, at the present day, to do a simple experiment and describe that experiment, he is perfectly incapable of doing that, although he may be capable of writing what you would call a good literary essay. Then it would have the effect of teaching people generally to express themselves correctly, because we insist that everything that is done shall be put down there and then in proper literary form. Literary teaching is to be combined with other teaching.

3903. It is sometimes said that men who have obtained high distinction in science fail in their power of expression?—They have not had scientific teaching. They have learned science, which is a different thing. The vast majority of our scientific men are very unscientific in their general habits.

3904. Then you say they have not been trained in the true scientific way?—Yes. They have learned facts, but have not gone beyond that stage in many cases.

3905. If we introduce into primary schools drawing, some sort of manual work, and the elements of science, where these subjects have not been taught before, something must be displaced to make room for them?—I don't think that anything would need to be displaced; because this work, if carried out properly, will involve practically all the work that is done at the present time, but which is being done badly. It will have reference to familiar objects and things of everyday occurrence.

3906. Where the whole day is occupied at present in teaching other things, then if the teaching of physical science is introduced, a portion of the time now given to other things will have to be given up to physical science. It may involve perhaps the omission, to some extent, of a mere book knowledge of facts and dates?—Yes.

3907. And perhaps some of the present system of teaching grammar might be dispensed with?—Yes.

3908. That is a question we have to face, because we have to deal with a very enormous system, extending over eight or nine thousand schools, in which these practical subjects are not generally taught at present, and therefore we must find time for the teaching of them; and to get that time we must put something else out of the place it at present occupies?—I think you will find that the wits will become so sharpened that the information you give at the present time can still be given, and given with very greatly increased effect.

3909 You think then that after a little experience nothing need be displaced?—I think not. You will find that the interest the children take in the work they do will be so much greater that they will work and learn more. At the present moment children leave school without any desire of continuing their education. "Continuation schools" are a failure on that account. We hope to get the children into a condition in which they will take more interest in continuing their education.

3910. Captain SHAW.—At present in some of the schools they drop class subjects in the first three standards and teach these subjects and then find they can cover the whole ground in the last two or three years: is that your experience?—That has already been shown to be the case.

3911. Would you agree that that is the case?—I am sure that will be the case.

3912. Mr. STRUTHERS.—Theoretically or from practical experience?—In a sense from practical experience.

3913. CHAIRMAN.—In answer to Monsignor Molloy you said that you thought the sharpening of the children's wits, and therefore the greater facility with which they would acquire what they are learning now, would make up for the encroachment on the time; but how would that be with regard to the present teachers who are quite ignorant of teaching these subjects?—I think that until you get teachers who are competent teachers, you will have great difficulty, but this must be the case.

3914. Monsignor MOLLOY.—I understand your answer to refer to the time when a proper system had been introduced and established?—Quite so.

3915 We visited the schools at Rutland Street yesterday and were greatly interested there, both in the scientific lecture and the practical work done by the pupils; but it struck me that a great deal of the success of that system depends upon the fitness of the teacher?—Is not that so with regard to all teaching? I should have thought that in every subject it is a question of the fitness of the teacher.

3916. Yes; but what I was coming to is that we have not teachers of that class at present existing. I was going to ask you whether you think that such teachers ought not to be prepared in the training colleges, where the teachers of the primary schools in Ireland are trained for their work?—I think the first necessary step is to reform the training colleges.

3917. And what reform would you suggest; perhaps you are not acquainted with our training colleges?—I am not acquainted.

3918. Would you say then what reform you suggest for the English colleges?—The number of subjects must be very much reduced. At the present time the more subjects an elementary teacher can gain certificates in the better, the more likely the teacher is to gain an appointment. You must abolish certificate-hunting and certificate worshipping on the part of the School Boards. They select their men for the number of certificates they have; they don't apply any rational test.

3919. I think I am right in supposing that you would recommend that those who have to teach science in the primary schools should be taught how to teach it in the training colleges?—Yes, and I

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think there ought to be a much sharper selection of material. My experience is that remarkably few people are capable of ever learning to teach properly. At the present time we consider that we can take anybody that offers and train him as a teacher. That is one of our fundamental mistakes; we have to do much more in the way of selecting young people who show some promise of ability, take them from school, and put them to the training colleges, and not take anybody who offers himself.

3920. I should like to know whether you think that the master of the primary school should himself, besides the ordinary subjects of education, teach elementary science; or that special science teachers should be trained who would teach science in a number of schools?—No, I think the class system is on the whole the best.

3921. You think that it would be quite within the power of the ordinary masters to do this elementary science work?—We don't want the subject made technical.

3922. And the knowledge required could be easily learned in the course of training?—I see no reason why it should not, provided he or she is taught rightly throughout.

3923. Now, you said that you would recommend a system in which there was no examination of pupils, but inspection of teachers?—I said no examination, except, perhaps, at the close of the school career. I would not have the children bothered perpetually as they are under the present system by being examined frequently in public. I don't object to moderate examination by the teacher of the school for the teacher's own purposes, but the pressure of being examined publicly is doing this country irreparable harm.

3924. The examination publicly by the Inspector should only be at the end of the school career?—Yes.

3925. Do you think in dealing with a very large number, some thousands of schools, that would afford a sufficient guarantee that the school had been taught efficiently each year?—If your Inspectors are active in connection with the schools, and see that the teaching is efficient on the whole, I think it will.

3926. How can they judge of the efficiency of the teaching by merely inspecting the teacher?—Not inspecting the teacher, but the teaching. I have been frequently present and taken a note of the way in which the work is going on in the school.

3927. You would contemplate then that the Inspector should visit each school several times in the year, and see how the teaching was carried out?—Certainly, I would not have a single inspection. I would have the Inspectors dropping in frequently and seeing how the teaching is going on. You must put as much faith as possible in your teachers.

3928. You said that at present the system of teaching is too mechanical. I am not quite sure that I understand exactly what you mean?—Too bookish would be a better way of putting it.

3929. You distinguish two systems of teaching—one humanistic and the other scientific—humanistic you describe as teaching from books?—Not only from books, but it refers to subjects in a sense; it was a word introduced by Matthew Arnold; it was he who made the distinction.

3930. And the scientific method is that in which the pupils are taught to find out for themselves what they can from the study of things?—Yes.

3931. Now, would you propose to ignore altogether the humanistic system, or would you carry on the two systems together side by side?—I should incorporate the two as much as possible. I should take everything that is good from the one system and incorporate it with the other.

3932. Then you do admit that a certain amount of teaching ought to be done from books?—Yes, especially later in the course; when children have learned methods they can be taught results. The present system is a system of teaching results without ever teaching them the method of reaching results.

3933. Incidentally, I think you said you found it very difficult to get the children to follow the practical method? — As they get older it becomes increasingly difficult, as they learn how easy it is to get information from books.

3934. I had thought that children rather took naturally to the practical method of learning, and that the difficulty was to get them to learn from books—perhaps Irish children are different?—I don't think after a time that you will find that is so.

3935. Taking the experience of the Rutland Street school, it seemed to me that the children there in the practical work yesterday, and in looking at experiments, showed much more eagerness and attention and intelligence than children in a similar school generally do in learning from books?—I think so.

3936. Therefore the experience there would show that when the practical method is brought before them, they come to take even a greater interest in the practical method than in learning from books?—I should think they would eventually.

3937. Then perhaps I should understand your view to be that when they have been trained to use books it is difficult to get them back to the practical method of learning?—Yes, it is difficult to get the pupils to help themselves.

3938. Mr. Redington.—Do I understand you to say that you would be prepared to exclude the study of geography and history from the schools to make way for the study of elementary science?—I would not exclude it at a later date; it is not necessary to introduce these subjects to any great extent in the earlier stages.

3939. Are they not as important as the study of elementary science?—I don't think they are

3940. You don't think learning some important dates is essential?—No. I think it is important to learn the use of your eyes with regard to your daily work; when you have learned that the other is of value.

3941. If a man knew nothing of the past history of the world would he be a competent citizen?—I should think much more competent than the vast majority are at the present time if he had the training I advocate.

3942. I think you said that certificates were no test of the knowledge of the teacher?—Of the competence of the teacher.

3943. If a certificate was founded upon a testing of the teacher's powers of teaching, would it not be a proof that he was a competent teacher?—Yes; it is very difficult to apply that test, a teacher has to learn his business like other people by practising.

3944. If the Inspector made him give a lesson before giving him a certificate, his competency could thus be tested?—That is, if he has been appointed a teacher.

3945. In the practising school attached to the training college?—I think you must form the opinion whether they are likely to make good teachers by watching them during a considerable period, and you must leave them to develop. I think it would be unfair to give first or second class certificates in a training college based on the observation of young people during a period when they had not arrived at maturity; it would be unfair to hamper their future career by that kind of thing; it would be better to let them go out with the general stamp that they are likely teachers, and let them develop in practice.

3946. Does not a manager when he appoints a teacher wish to know whether he is competent to teach or not?—I think if many of us who have succeeded in teaching in later life had been put through that test we might have received very poor testimonials.

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3947. Would not a certificate founded on a test of the practical power of teaching of the Queen's scholars as well as on their knowledge of the subjects, be of great value to the manager in aiding him to appoint competent teachers?—Yes, it might be.

3948. Therefore it is not the certificate you object to but the mode in which in some cases it is given?—What I objected to was the large number of certificates gained from the training colleges. By passing examinations they may obtain certificates of having passed in a dozen subjects perhaps, and these have a cumulative value. It is not the particular certificate that counts, but it is having a dozen certificates against the ten of another person—a candidate with ten will be beaten by one with twelve.

3949. Is there anything objectionable in that if the certificates were given after proper tests of the candidate's power of teaching?—There would be no objection if you limited the subjects to three.

3950. If a manager wished to have four subjects taught in his school, would he not prefer a teacher with four certificates instead of one with three?—I suppose so, but what we want to see done is the number of subjects which could be dealt with limited.

3951. If a teacher can teach more subjects well is there any objection to his having studied these subjects and got certificates in them?—If he has done it well, but I think experience shows the number of subjects that can be dealt with is limited, and in a large number of subjects competent knowledge is not required.

3952. I think you said you would have no public examinations in schools, you would have faith in the teachers?—I said I would only have a leaving examination, I would not have the children subject to public examination each year.

3953. How could one be sure that the teacher's methods had left any permanent impression on those taught unless there is some examination?—I think you must trust to that; if you have a good teacher, a good teacher will produce a good impression, and that impression does not always show itself at once.

3954. Most Rev. Dr. WALSH.—In your system you would have a number of children examined every year, for every year some would be going away?—Yes

3955. Mr. REDINGTON.—Your system is that the examination should be at the end of the whole course?—Yes.

3956. Supposing the course lasted three years, might it not occur that in the first year the teacher's methods were such that he had not educated properly those taught, and you would have no means of correcting that until three years were over?—Yes, but if the inspector had been sufficiently often at the school he would take a note of that, and that would come out at the examination at the end of the school career.

3957. Would not that be too late, whereas if it came out at the end of the first year the teacher's methods could be corrected?—You would have to examine at the end of each year; supposing twenty were leaving you would have twenty examined, and if twenty broke down one year, and twenty the year after, and twenty in the third year, it would be pretty obvious that something was wrong.

3958. Your examination would only be of the highest classes?—Yes, but it would be those who had gone right through the mill who would be examined.

3959. Mr. STRUTHERS.—But they may have been in the hands of three different teachers?—Then you must look further into the question, they would not break down in all the subjects.

3960. Monsignor MOLLOY.—You lay great stress on the fact that the inspector would visit the schools several times in the year, and see how the teaching was carried out?—Yes, he would not make a mere formal visit for the purpose of looking at the log book.

3961. Most Rev. Dr. WALSH.—He would always have the power of examining to a certain extent?—Yes.

3962. Mr. REDINGTON.—Why is an examination conducted by the inspector at one of these visits so very good, and an examination at the end of the year so very bad?—Because it does not involve preparation; the children are not put under a special preparation like christmas turkeys specially prepared for the market.

3963. Most Rev. Dr. WALSH.—You said that one of the defects in the present state of affairs is that all the departments require to have their hands forced to introduce practical methods, I trust you are aware that that remark does not apply to the Commissioners of National Education in Ireland?—It obviously does not there, but we want for these matters some form of educational council which would be subject to perpetual renewal, so that the people who are working in these directions would be perpetually having their attention called to the difficulties.

3964. The existence of this Commission is a fair proof that, instead of requiring to have our hands forced, we, in Ireland, are, on the contrary, anxious to have these improved methods introduced into Irish schools?—Yes, but when the Commission comes to an end, it may be many years before another sits; some machinery will be required to keep things going in the interval.

3965. You mentioned a special difficulty in connection with the School Board here in London, that it is a mere accident whether there is anyone on the Board who is capable of forming a sound judgment upon an important educational subject such as this that we are inquiring into?—People are elected in the London district on the question of whether the rates are to go up or not, and not on any educational principle.

3966. That is a defect inherent in the elective School Board system?—Yes, and that requires correcting by means of some educational council.

3967. Another defect which you mentioned is in connection with the training colleges. May we understand that in England, as, I fear, is the case in Ireland, less attention is paid in the training colleges to the training of the students in the art of teaching certain subjects than to the mere imparting of knowledge of those subjects to the students themselves?—I think that is generally true.

3968. Do you think the training college system is capable of useful reform in that direction?—I have no doubt it is.

3969. Teaching the Queen's scholars how to teach, rather than giving them a knowledge of the different subjects that are to be taught?—Yes.

3970. Do you not think that the possession of a certificate in any one department of teaching would be a very fair indication that the person who had that certificate was likely to be a good teacher, even in other subjects: I suppose the system on which teaching certificates are given to be a good one?—If the system is a good one, certainly it would be valuable.

3971. It would be a fair inference for a manager, if a teacher was certificated as a really good teacher, let us say in grammar, that that teacher would be a good teacher also in geography?—Yes; but that is not the character of the certificate that is given at the present time

3972. No; but I contemplate a reform of the whole system. The certificate that I contemplate would give a guarantee of the power of teaching rather than of mere knowledge attained?—Yes.

3973. I saw an account of some American colleges that are working on this principle; I wish to know what you think of it The course is of two years. During the first year the students are taught the different subjects they will have to teach; afterwards, in the second year, they are taught how to teach. Do you not think that a reform on those lines would be useful?—You know—if you teach people properly—I don't think they require to be taught to teach; they learn instinctively.

3974. You think, by having them well taught in the training colleges, they would learn to teach of

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themselves?—Yes; I don't think you will require to teach them how to teach independently.

3975. Do you think the ordinary Queen's scholar coming into a college is able to identify the points that constitute good teaching, so that, without having his attention called to the points that constitute the difference between good and bad teaching, he will pick all that up for himself?—Such a scholar will be very much helped by drawing attention to certain points in regard to teaching.

3976. In the system then that you recommend, you would have them well taught by competent teachers, and those teachers should take care, from time to time, to point out the principles on which they were teaching?—I may say, if I may be vain enough to refer to it, the fact that, in my college, these matters have been the subject of discussion during several years, has entirely determined the action of men like Gordon and Heller. They have not been taught how to teach, but they have followed the discussion that has gone on, and their competence has been produced by their interest in the subject. These men who have been so successful have had no training besides what they have had in watching work and getting into the habit of being curious.

3977. But these are rare and exceptional men, we cannot count on getting them all over the country?—Mr. Gordon came with a poor University reputation; he only got a second at Oxford, and he has turned out to be an exceptionally brilliant man.

3978. That does not surprise me in the least. But, for the Queen's scholars generally, you surely think that it would be a useful thing to have them first well taught, and then to have their attention called to what constitutes good teaching?—Yes

3979. And the certificate should rather guarantee their power of teaching than their mere knowledge of the subjects to be taught?—Yes.

3980. And in that way certificates in a small number of subjects would be much more useful than the present system of certificates in large numbers?—The certificate properly given by the training college would be very valuable. I object to men going in for the Science and Art Department examinations in this and that subject and getting pass certificates and using them as certificates of competency; they are not certificates of competency.

3981. In connection with the teaching of science in elementary schools, you think that instead of scientific facts being merely taught to the children, the children should be rather taught how to find out things for themselves?—Yes.

3982. I see that in your essay on the practice of teaching chemistry you quote a remark of Professor Meiklejohn, "that man is essentially a hunting animal"?—Yes, he means an inquiring animal.

3983. The children will take an interest in hunting up a subject for themselves?—I have quoted Professor Fitzgerald at the head of the chapter; I think there is an important fact referred to in his statement.

3984. Yes, where Professor Fitzgerald says: "The development of habits is necessary for the individual, and hence for the race, but it stops development along new lines"?—Yes, we want as far as possible to get over that.

3985. What would you think of a system of examination conducted exclusively in writing, in a practical subject, say chemistry?—I don't think you can have a worse system.

3986. You think the system more likely to do harm than good?—It has done infinite injury to this country.

3987. You are aware we have such a system in Ireland, not in connection with the National Board, I am happy to say, but in connection with another Department?—I would rather have anything than that; I think it does infinite injury.

3988. Rev. Dr Evans.—What experience have you in the teaching of English subjects?—I have practically no experience, except from general observation and taking a keen interest in the subject.

3989. Have you experience of the teaching of English subjects in schools, or, have you visited schools to see how it is done?—No, I have only a general knowledge of that subject; I have not paid any special attention to that in schools.

Mr. Wm. Mayhewe Heller.

Mr. Wm. Mayhowe Heller, Science Demonstrator under the London School Board, examined.

3990. Chairman.—Will you kindly tell us the exact position you hold?—I am the Science Demonstrator for two of the divisions of the London School Board. London, for this purpose, is divided into four districts under four distinct science demonstrators, each one influences his own particular district, and has, you may say, no influence whatever outside his district.

3991. Then do I understand that you have two out of four districts?—I have only the one of four districts.

3992. Then there are three others besides you?—There are three others besides me.

3993. Will you give the Commission your views on the necessity of the teaching of scientific methods in elementary schools for the purpose of mental discipline and the formation of habits and character rather than for the acquirement of information?—Well, the object of course in the first place of the introduction of the methods with which I was associated was to teach the scholars themselves to think, in contradistinction to the method which has been in operation not only in the London Board schools, but in most other schools throughout the country, in which science was taught wholly and solely for the facts and the knowledge which was to be obtained from such teaching. Our object is an educational one, in which the question of the information acquired at an early stage in the scholar's education is comparatively unimportant when we consider the effect that it has on the minds of the scholars themselves. It is to teach how to think, rather than to teach knowledge.

3994. Then, must your teaching be experimental and carried out in the spirit of research?—Most distinctly, the endeavour of course is that all the knowledge, that every fact learned at this early stage, even the work of the fifth, sixth, and seventh standards of the school, should be the result of discoveries made from the experiments performed by the children and by the teacher. I do not think there is any necessity for outside facts being taught which have not been so discovered.

3995. What have you to say about specialised branches of science?—I think that in most cases specialised branches of science which are included in our Education Code under the head of specific science subjects——

3996. For example?—Magnetism and electricity and chemistry and so on, ought not to be taught because everyone of them assumes for the proper understanding of the subject a knowledge of fundamental scientific methods and principles, in which the teaching in most cases is absent. A very favourite subject in our schools is magnetism and electricity, that is taught to scholars at the age of eleven. When one goes into those schools and questions the class we find they are met with the difficulties of having no knowledge of the general principles of physics or chemistry; these children will tell you all about $H^2 SO^4$ and CO^2 without the slightest knowledge of what such symbols mean; it is in the books and the Inspector expects to have such formulæ in the answer. To a great extent it has been so for some time, and has been due to the mode in which the examination has been conducted, and the answer which is expected. It is simply

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teaching the children to be prigs, and making use of forms which must be to them simply unmeaning.

3997. Making use of terms of which they don't understand the meaning?—Yes.

3998. You prefer a general education in physical and chemical methods, accuracy being the essential feature?—Yes.

3999. Do you think that there is a necessity for any radical change in the methods of science teaching in vogue in pupil teachers centres and training colleges?—I do not think we can get any science teaching until a complete change is made there. The system at present is practically a preparation for examinations under the Science and Art Department, and I have never heard yet of any question in the method of teaching being addressed to teachers in training colleges; I have been quite unable to find a case in which the mode of teaching science has ever been mentioned to teachers in training colleges, the whole effort is directed to preparing them for the advanced stage of one of the examinations of the Science and Art Department, the whole efforts of the teacher and of the pupils are directed to that purpose.

4000. I suppose in a system of that sort a student who has a good memory has an advantage for the purpose of the examination, but that memory is no use to him afterwards when he has to impart the knowledge to students?—Memory will always be useful to anyone. And it is the student with the stronger memory who would do best at examinations of this sort. Of course there are other things which influence his success. One assumes that in a training college the object of learning science is because the teacher will have to teach science afterwards, and I do not think any effort has been made to put before such teachers in training the question of how science should be taught.

4001. What would you suggest should be done to meet the present necessities as regards training colleges?—I think the whole of the science teaching must be remodelled, this system of sending in for examination under the Science and Art Department, as it is now carried out, must be dispensed with entirely, wherever science is taught it must be accompanied by experiments made by these teachers, and to a large extent the facts they learn must be the result of the practical work they have done.

4002. That applies to those teachers who have already got certificates?—I think so; as a rule most of the teachers I have to deal with have some certificate or other under the Science and Art Department, and I think I am right in saying that it is harder at first to get those teachers to adopt the methods we advocate than those who have not been in for such examinations, and who have not the amount of information about their subjects. It is very much easier, as a rule, to teach the teacher who has done no science whatever than the teacher who has read for examinations in the Science and Art Department.

4003. Do you think that science teaching is of great importance for girls' schools?—I think personally that it is of more importance than for boys. I don't mean by saying that to in any way lessen its importance for boys, but I think for girls it is very much more important, because girls for some reason or other do not think (at any rate when questioned in school), do not think to the same extent that boys do. They have apparently a distaste to even know, much less give, a reason for an answer, and there seems to be an air of apathy about the scientific instruction given in girls' schools. I imagine it is because so much of it has been given simply by word of mouth, and with the object of getting the scholars to remember the mere facts which have been stated, that there seems to be very little interest in the work which is done.

4004. Do you think that there is a necessity for a complete remodelling of the teaching of domestic economy?—I think so, most certainly; at present the domestic economy course which has been in the Code has dealt with a very large number of important subjects, but it has been dealt with exclusively almost by teachers with no knowledge whatover of the scientific principles or even the scientific facts underlying the questions that are under discussion.

4005. Are there any other general observations you would like to put before us?—I don't think there are any other general observations, other than those which I have already heard Professor Armstrong give. Of course I can possibly make more clear anything, I mean by answering individual questions.

4006. Most Rev. Dr. WALSH.—You are now an organiser, I believe?—An organiser and instructor. I practically occupy an advisory capacity. I visit a great many schools about once a fortnight, and give one lesson to each class.

4007. May I ask did you begin by being a teacher in any of the schools?—No, I did not.

4008. Then you were not trained in any of the training colleges?—No.

4009. You have no experience of the present system of training teachers?—Except that all my life I have been intimately connected with teachers.

4010. You can form a good idea of the good and bad points in the work of the training colleges?—I think so. I have been surrounded by the atmosphere all my life, and know practically what is going on.

4011. As regards this department of science teaching, what do you consider to be the really weak point in the training college system?—The point I have already mentioned, that the only effort is an effort for the passing of the written examination.

4012. And not very much is learned that cannot be got out of an ordinary treatise?—No.

4013. So that the students are taught exactly as children are taught in the school, without any reference to their future work as teachers?—Certainly

4014. Is there a special professor of the method of teaching in the training colleges in England; in our Irish training colleges we have a professor of method?—There is of course a teacher that they call a teacher of education, but I think I am quite right in saying that the teaching under that head has no reference to any of the practical science subjects.

4015. I think that is so also in Ireland; it has reference to such subjects as arithmetic, I suppose?—Arithmetic and the general mode of teaching, I think, the ordinary subjects, most probably the three R's, but I think has no reference whatever to any science teaching or science subjects.

4016. Do you not consider that a good teacher of science, by the mere fact of his teaching, teaches also how to teach?—Yes, I do most certainly. I think a good teacher of science would most probably be a good teacher of any subject.

4017. But my question rather was whether in the teaching of his own subject, by the fact of his teaching well, whether he teaches the Queen's scholars how to teach it?—Yes, most certainly I think so; the method of teaching teachers to teach is to teach well yourself.

4018. But do you think that that alone is sufficient, the mere fact of his teaching well?—I think it is sufficient.

4019. Do you think the ordinary Queen's scholar is capable of appreciating the results of a particular method of teaching, a good method, and capable of knowing exactly in what the excellence of it consists?—I certainly think the teacher of science to the teachers in training might make special reference to the points which he desires to accentuate.

4020. Might it not be a good thing for him sometimes to show how a thing could be taught badly by way of contrast?—Perhaps it would be dangerous.

4021. Possibly. We had an example in Birmingham of a professor of drawing who put a diagram into his book to show how a thing should not be done, and he found that in some of the schools they took that to be an example to follow?—I think it would be dangerous in many cases.

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4022. According to your view, I take it, the amount of scientific knowledge acquired by a teacher is really a matter of secondary consequence?—I think so.

4023. Of course he must learn a certain amount?—He must.

4024. And especially of the principles?—Yes

4025. But, provided always that he learns it in the right way, the amount of information that he has acquired is a matter of secondary consideration as compared with the power of teaching?—Provided he learns what science he does learn in the right way Learning in the wrong way may do a great deal of harm

4026. By learning in the right way you mean finding out things for himself?—Yes.

4027. And knowing how to put his pupils on the right track for finding out things for themselves?—Certainly.

4028. You spoke of accuracy: you would apply that specially in your own department to weighing and measuring things?—Yes, in the first place, but not only that; accuracy of expression is of the very utmost importance, in examining a class in a school you get the most loose and wild answers.

4029. You will find many of the pupils capable of doing a thing, but not capable of describing what they have done?—Quite so, and our effort is always to get absolute accuracy of expression, to get a child, as far as possible, in answering a question, not to give a one word answer, which is so frequent, but to give a complete description of the experiment or result which he is describing, and to ensure that every word of that description is strictly accurate and true.

4030. You think it a useful thing in a school to get children to describe ordinary occurrences?—I think so.

4031. I can give you briefly an account of the method pursued in a very excellent primary school in Dublin; the teacher, who is a nun, a very experienced teacher, made it a point on Monday morning to ask the children to describe where they had been brought to on the previous day; the child may have been brought to the Zoological Gardens, for instance, and would then be asked to describe the different animals. You consider that a good system?—Distinctly good.

4032. And one that would probably have a useful effect in developing the intelligence of the children all round?—I think so.

4033. In that particular school, I may mention, this seemed to be the effect of it: the school is one of the most efficient in Dublin. You do not think the kind of teaching you describe is promoted by the results system of payment?—I should say the results system of payment is almost the worst influence that could be brought to bear on such teaching.

4034. You think it almost impossible under a system of payment by results to conduct the work of the school properly?—I think it would be absolutely impossible; the teacher's mind must be free to teach for the sake of training the mind of the children without regard to anything outside, and if he finds it necessary to alter his methods for that particular purpose he should have perfect freedom to do so.

4035. Mr. REDINGTON.—How many classes for elementary science are there in the Rutland-street School which we visited yesterday?—Four classes which are influenced by the work you saw in operation.

4036. How were the teachers of those classes instructed in your method of teaching elementary science?—They have all been to the classes for teachers held at Mile End School, where they spent from two to two and a half hours a week.

4037. In how many weeks?—From October to Whitsuntide.

4038. After having gone through that course would they be competent to teach in the way you approve of?—It depends entirely on the man whether one year's course would be sufficient; one very often finds that a man improves very much after being through the course a second time. In the case of the best men it would be sufficient after perhaps one year, but you must remember these men go on improving as long as they go on teaching, all we can do is set them on the right lines.

4039. When they are first appointed they have not been through the course?—No, and they only come to this course on an invitation which I issue to them, they are not requested to go by the Board.

4040. How can they teach in the way you approve of before they have gone through the course?—In such schools where there are such men they have to depend on the lessons I give, which may be regarded as the model lesson, given once a fortnight

4041. Therefore when they begin their instruction they have had no training in your particular way of teaching?—No; only by listening to my teaching, without such training it would be absolutely impossible in most cases for them to teach such subjects.

4042. But they begin with no training?—Yes; but they only repeat practically in such cases the lessons they hear me give; they are supposed to take full notes while I am giving that lesson.

4043. Is it a condition of their appointment that they should follow your course?—None whatever.

4044. Who introduced this system? Is it carried out in every school in London?—Oh, no, it is not carried out in any district beyond the one which I influence at present, at any rate in its entirety, and in my district which comprise about 150 schools, this system of work would be taken, I think, in 48 or 50 schools.

4045. Captain SHAW.—Are there managers who decide what subjects should be taught in the schools?—No; that is a matter simply for the inspector and head teacher to settle.

4046. Most Rev. Dr. WALSH.—Are there managers in the Board schools apart from the Board?—Oh, yes, there are managers for every school, or for a group of two or three schools under the Board, appointed by the Board.

4047. Professor FITZGERALD.—Are they members of the Board?—There is a member of the Board attached to every school, who has an *ex-officio* position on the board of managers in each school.

4048. Mr. REDINGTON.—How many schools have you in your division?—150.

4049. You don't visit 150?—I only have 50 schools doing this particular class of work, and then I have an assistant, who also does very much the same sort of work, going to the schools, that I do not myself visit, and we each visit 20 or 25 schools each week.

4050. Are there fees paid by the Science and Art Department for this work?—No; but the usual grant for a specific subject from the Education Department, 2*s*. or 3*s*. a head according to the award of the inspector.

4051. CHAIRMAN.—You say that your district is the only one where this teaching is carried on; in the other three districts what are the duties of the demonstrators?—The duties are precisely the same.

4052. How do they give effect to their duties?—The system of teaching in their case is to visit, just as in my case, their schools once a fortnight, or at some interval which they decide, but I meant to say this system of teaching, the particular course H, is only taken in my divisions.

4053. Then it is not the general teaching of the subject?—No; the particular course.

4054. Have they their own modes?—They have of course, each individual demonstrator teaches chiefly through the list of specific subjects in the code, the most general one is the mechanics course.

4055. That is the distinction you are making, you particularly turn your attention to chemistry?—No; simply this particular course H, which is a course of fundamental principles underlying physics and chemistry.

4056. Some don't take chemistry in their schools?—Some don't take chemistry at all.

4057. Then in some of the other districts you allude to, chemistry is not taught?—It may be taught

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in some of the schools, but it would be taught as a specific subject, not under the course which we take, we take an introduction to physics and chemistry.

4058. Mr. Redington.—Does the Science and Art Department give grants for elementary science in any school?—Yes, up to the present, but a change is now being made, for this year schools are taking some science subjects under the Science and Art Department, and earning the usual grant as earned previous to the recent changes in the Science and Art programme. But after this year a class in a school will not be empowered to earn grants that way unless it is organised as an organised science school.

4059. Monsignor Molloy.—Although your title is Demonstrator of Physics, I understand you fulfil the functions also of inspector of the teaching of science, giving model lessons, and acting as general adviser to the Board with respect to elementary science teaching?—Yes, but rather as an adviser to the teachers than an adviser to the Board, any advising I have to do with the Board is usually about apparatus.

4060. But you have a considerable latitude as to the nature and methods of the elementary science which is taught in your district?—Almost absolute freedom.

4061. Are there other inspectors in your district for other branches of primary education?—For drawing and for manual instruction, and also, I believe for singing.

4062. Do manual instruction and drawing go on in your district side by side along with the elements of science?—They all form subjects of the school work.

4063. Necessarily?—I don't think compulsorily at all.

4064. But are they generally taught?—Yes, generally, certainly.

4065. Drawing is compulsory?—Yes.

4066. Most Rev. Dr. Walsh.—That is, for boys?—Yes.

4067. Monsignor Molloy.—With regard to the particular subjects you take, am I right in supposing that you don't take chemistry and physics as such, but you take certain fundamental principles which underlie both chemistry and physics, not for their own sake, but as the best and most suitable means of teaching scientific methods and encouraging scientific habits?—Certainly we do not teach a systematic course of physics or chemistry, but we take a few of the most important and fundamental principles underlying practically the study of any branch of science, more particularly with the object of showing what the scientific method of inquiry is. In fact I most strongly hold the opinion that no special branch of science need be taught to a scholar leaving the school at the age of thirteen.

4068. Most Rev. Dr. Walsh.—Exactly on the same principle that in the department of manual instruction you don't teach a particular trade, you teach the pupil to use his hands, and you aim at sharpening his wits generally?—Yes.

4069. Monsignor Molloy.—Might I ask you to describe briefly the three stages followed in your course of elementary science, as you explained to us yesterday?—In the first stage, which of course applies to children in the fifth standard, and the average age is about eleven, the introduction is a series of measurements, length, both in the English and French systems, and the notation used of course is mentioned, but the knowledge of these systems is obtained entirely by the children themselves making a large number of measurements, and everything which is about, is discussed, their slates and things of that description, the room, the playground, and so on where convenient. In connection with decimals of course we simply use the decimal point as a piece of shorthand for representing one-tenth, simply introducing that as not a new rule of arithmetic, but a convenient symbol. Then, a child will draw lines of certain lengths, first of all there will be put two lines of known length end to end, and measure the whole length of such a line, and show that the result obtained is the same result as could have been obtained by adding up those numbers containing decimals in the ordinary way. Then for the multiplication of areas we discover by means of squared paper or a squared blackboard, the rule for determining the area of the oblong, that is to count the number of squares along a row, and the number of rows, but then when we come to the oblong in which the length of the sides contains decimals, of course the child is at fault, because he cannot multiply those numbers which contain decimals together.

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4070. The first six heads include measurement of length, area and volume?—Exactly.

4071. Then comes specific gravity, weight of air, the construction of the barometer, and the principle of Archimedes?—Yes.

4072. That is practically the first year's course?—It goes a little further, after we have done this preliminary work we come to a few lessons on heat the general effects of heat on various substances and the effects of expansion and so on.

4073. Then the second stage deals with the fundamental principles of heat?—The second stage goes on from the point that we left off, to consider further changes produced by heat, evaporation, the state of the air as regards moisture, solubility and crystalisation, then more lessons on the measurement of heat, and from thenceforth latent heat will be introduced, a change made within the last fortnight in the Education Code, and after that the next piece of work as represented on the printed syllabus is a research into the nature of marble and chalk.

4074. What is the object of that?—Simply because it is one of the most complete of the historical researches which we have at our disposal, and which enables us to thresh out a problem very completely indeed, it happens to be a very convenient piece of work to start with for getting a good argument during the whole of the work.

4075. Then the third course?—The changes which are effected when substances are burnt or heated in the air, the nature of the change in the rusting of iron, we should first of all see of course what condition promoted the rusting of iron, then endeavour to see what that effect means, that it means an increase of weight, and finally endeavour to discover the sources of this increase of weight. Then the burning of other substances in the air, using as far as possible those which the scholars know something about.

4076. Do you bring home to them that the rust of iron is simply a slow process of combustion?—Yes.

4077. Of which we have a familiar example in the burning of coal?—Certainly, and in that one case we should rust a piece of phosphorous slowly and burn it quickly, the rusting might take a couple of hours, the burning thirty seconds, to show the process was the same, but different in rapidity.

4078. What length of time is given to each stage?—Each stage represents a year's work.

4079. And how many hours a week?—Eighty lessons is a year's work of forty minutes duration each, two lessons a week of forty minutes each.

4080. The pupils are required to carry out all this work for themselves?—All this work, certainly, for themselves.

4081. And they get such instruction and assistance as may be necessary to enable them to do it rightly?—From the teacher.

4082. This course is for pupils, but you teach it also to the teachers?—I teach this course with a slight modification to the teachers

4083. But the course we have here in print is exactly the course taught to the pupils?—Exactly, except, perhaps I ought to mention that recent changes in the Code of the Education Department have made a few changes in the order.

4084. Do you find the general run of pupils can get through this course in three years satisfactorily?—Quite so.

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4085. Mr. Redington.—Of what standard are the pupils who follow this course?—Standard 5, 6, and 7, the work leading to it is done in a great many cases in the lower standards below 5, the elementary science work of the lower standards is framed to prepare for this.

4086. Are all the boys in the first stage boys in the fifth standard?—All boys in the fifth standard.

4087. Each stage represents a standard?—Yes.

4088. Monsignor Molloy.—With respect to the method of training teachers, it is practically the same as that of training pupils?—Yes, it is.

4089. But expanded?—Yes, it is almost exactly the same except of course, from the nature of the students you have to deal with, your methods must vary to a slight extent, my method of training the teacher is an extremely free and easy one, one in which we discuss these things as far as possible, and in which I always ask for suggestions which may be improvements in method, such as the individual experience of the teacher may suggest.

4090. Then, having so trained the teachers, you give them no special teaching as to how they are to teach, but leave them to their own intelligence to teach what they have learned?—I must say that I often, in the course of the instruction I give them, do make suggestions as to how this should be put, and I particularly take care to mention particular points which I find to be difficult to teach and to warn them of those points and to suggest how such dangers can be circumvented.

4091. Am I right in supposing that this course has been thought out for the purpose of affording a sufficient means of inculcating scientific methods to the pupils?—Yes, that is the one main object of the course, of course we are being continually told by teachers who are not working at all on those lines, that we don't teach half enough, that is one of the objections levelled at us by teachers.

4092. Does this syllabus come from some one individual?—This arrangement of the work is entirely mine.

4093. Chairman.—What is your answer to these objections, if an individual says to you "Mr. Heller, you are not teaching enough," what do you say?—I simply say that my object is not to teach a great amount, but the course is arranged to teach the method, to teach them to think, which necessitates time and the teaching of a very small amount of matter.

4094. Monsignor Molloy.—I think you said you are opposed to the payment of teachers by results?—Most certainly.

4095. Suppose all teachers have a certain assured income in the form of a salary, would you then object to paying an extra sum to those whose teaching has been considerably above the average in point of zeal and efficiency?—It is not by any means an easy question to answer, it is rather apt to introduce many of the evils which the older and more complete system of payment by results, I think, has introduced.

4096. The evils of the old system may have been due, in great part, to the fact that the method of testing results was objectionable?—Yes.

4097. Then the system of payment for results suffered discredit by being associated with a bad method of estimating the nature of the results; but suppose you had a satisfactory system of inspection, would you object to paying teachers something extra, who, from the returns of the inspector, are shown to have carried out their teaching with extra zeal and efficiency?—Provided that payment were not made a variable one, I don't think it ought to vary from year to year, of course in that case it would mean that it depends on the results obtained from year to year; if the general teaching of the teacher is considered so good that it should imply a general advancement of salary, it ought to be made.

4098. That is to say, if there is a favourable report there should be a fixed sum paid for that extra efficiency and zeal of the teacher?—Certainly.

4099. And in that form you would not object to payment by results?—A fixed increase of salary in that form, which, of course, is not payment by results in the old sense at all.

4100. It would be payment for results, but not subject to the objections made against the former system?—Certainly, a good teacher ought to be higher salaried than a poor one, so far as that is concerned. Of course, no one can have two opinions on the matter.

4101. Mr. Redington.—But if that good teacher afterwards became lazy and negligent would you not in any way mark your sense of his deterioration?—I am afraid it is a question I would rather not answer. It is a very wide question and would want such a general answer, I might say quite what I did not mean.

4102. Monsignor Molloy.—I mean that the payment each year would be made upon a special report of extra zeal and efficiency, but it would be a fixed sum in addition to his fixed salary?—I think that is distinctly undesirable if it is to be one which may vary from one year to another year.

4103. It would be the same if it is given?—If it is not given it would be a variation. I mean to say that a teacher whose teaching has been considered so good that he deserves an increase of salary should receive that increase, but I don't think that increase should ever be deducted again.

4104. It should be made once and for all?—Yes.

4105. Why do you consider it objectionable to make it dependent on extra zeal and efficiency in each year as it comes?—The teacher then has a motive which is not an educational one.

4106. But, taking men as they are, you cannot expect seven or eight thousand teachers to be all ideal men. They will be ordinary men; and for ordinary men do you not think that it is a useful and wholesome stimulus to know that if their teaching shows extra zeal and efficiency, that extra zeal and efficiency will be specially rewarded by extra payment?—As I said before, if it is made once for all I don't think that extra zeal and efficiency in one year should mean an extra payment for that year, and that a decrease in zeal and efficiency should be met by a decrease in payment. I think the teacher should obtain this extra payment, not, perhaps, by one year, but several years of good work, and having so obtained it should retain it.

4107. Captain Shaw.—At present the teachers can be dismissed by the managers at short notice?—I am not quite sure.

4108. Well, accepting that, a good teacher will be sought for by other managers, and when he leaves one situation and gets another he will probably get a rise of salary?—Of course, a teacher only applies for an appointment, as a rule, which means a rise of salary, or means working under more favourable conditions, and when a position becomes vacant in a school of course the position is advertised, and a number will apply for that. The manager selects whoever he considers most desirable.

4109. Is not that a sufficient incentive to keep the teachers up to their work?—I think it is far more of an incentive than a reward each year.

4110. Monsignor Molloy.—It is an incentive up to the time it is first awarded, but it ceases to be an incentive from that time on, whereas an annual reward will be an annual incentive?—I think no teacher should want an incentive to teach well.

4111. If he was an ideal teacher, but if you take 8,000 teachers, they are not all ideal teachers?—I think they ought to be.

Professor Fitzgerald.—It is only the ideal teachers who will ever get into the highest positions.

4112. Monsignor Molloy.—I don't think so. I was going to ask you if you would state very briefly what is the nature of the complete remodelling you recommend in the teaching of domestic economy?—

The remodelling must start with the teacher herself, the line on which domestic economy is taught is entirely covered by the small text books which have been issued on the subject. The Code of the Department is a very wide one, and could be interpreted to mean practically anything, so the teacher has to take the small text-book as her guide. Throughout those text-books the operations of the household are discussed and the scientific principles underlying those operations are sometimes mentioned, and the teacher of course mentions those practically as she reads it from the book to the class, but no knowledge whatever of the inner nature of these things is given to the class, the class accepts the fact that heat, we will say, will cause things to expand, and in the most rare case is anything ever given to substantiate that fact, at least to deduce that fact from an experiment.

4113. Do you include the expansion of bodies under heat in domestic economy?—It is the very greatest importance. I take that as an example which was bound to be introduced, but of course there are many other much more important ones.

4114. Sanitary questions, perhaps?—Yes, certainly, expansion of gas in connection with ventilation, the circulation of hot water, the breaking sometimes of plates of stoves, it all has application.

4115. Captain SHAW.—As to the number which a teacher can teach satisfactorily in this way?—Of course the smaller the number the better will be the teaching. I think the maximum that a teacher can do any sort of justice to in such teaching would be placed at forty. I don't say that that produces the best results. It should be a much smaller number to produce the best results.

4116. Is the equipment required for this instruction costly?—The cost for boys comes to about £13 for the three years' course, that is for the school, that might represent 120 boys.

4117. Are there any special fittings in the school we visited yesterday beyond the ordinary school fittings, any fixtures?—No, no fixtures, nothing beyond ordinary school fittings. There were two or three extra balances sent down so that more boys could be put to work at once.

4118. Were there any fittings put into the school when the subject was introduced?—No.

4119. CHAIRMAN.—What we saw yesterday was being carried on in the ordinary classroom?—In the ordinary classroom, the only additional advantages we can give is by means of a lecture desk and cupboard.

4120. Mr. HARRINGTON.—What is the cost of maintenance and renewal?—It comes to about 15s. a year.

4121. Would you mention the cost of the laboratory fittings for the teaching of teachers?—The apparatus and benches at Mile-end School cost about £300.

4122. The renewals?—I could not give it exactly, but approximately £20 a year.

4123. Monsignor MOLLOY.—What do you say is the cost of the equipment of the school?—£13 for three years and a renewal of about 15s. to £1.

4124. Then it is evident there is one incidental advantage of your method of teaching, that it can be carried out at a moderate cost, whereas the equipment for an ordinary course of physics is extremely expensive?—I suppose it is; it is considered high by the London School Board I know.

4125. And that sum of £13 includes a certain number of balances of a delicate character?—Yes, capable of weighing to one-hundredth of a gram; that we put as the worst balance that should be used for such work, a balance that was at all less accurate would not fulfil the conditions we wanted to fulfil.

4126. Captain SHAW.—As regards the framing of syllabuses, Professor Armstrong suggested you might adopt them for agriculture or particular manufactures in the place, but in framing such a syllabus would it not require a person to have a thorough knowledge of the whole of the sciences on which he framed his syllabus?—I think so.

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4127. You in framing this syllabus have a considerable knowledge both of chemistry and physics?—Yes, I have been through a pretty prolonged course in both branches.

4128. You find it necessary to constantly supervise the teachers to prevent them introducing what they consider improvements, which they get out of books?—Yes, that we have to be very careful about; a teacher sees something which he or she fancies is a lively sort of experiment perhaps, and introduces it where it would spoil the whole thread of the argument running through the work.

4129. Then practically you want a supervisor with a scientific education for this class of work?—Yes, until the teachers are more trained.

4130. You are aware the Science and Art Department frame their questions as far as possible to prevent mere book work enabling students to pass the examinations?—That change is a matter of the last few years, and to a certain extent, a matter of outside influence. I am of course referring to it under the conditions under which most of the teachers I deal with obtain their certificates, which may be 10, 15, or even 30 to 40 years ago.

4131. Are you aware that there are questions in the training college papers as to methods of teaching in science?—I have not seen those papers, but the opinion I expressed was as regards the teaching of science in the training colleges that I am fairly familiar with, I have never been able to discover—I did not state that it was not the case—I have never been able to discover any attention being given to the method in which science should be taught to the children.

4132 As a matter of fact there are questions on teaching set in the papers?—That, I suppose, is comparatively recent; I was more especially referring to the older times.

4133. Rev. Dr. EVANS.—Could you give a simple, easy definition of your system?—It is a system formed to teach the scholars to think, because in practically all other subjects taken up in the school course, the scholar has very little chance of thinking, even if he or she desired to do so.

4134. Would this be anything like a correct definition of it—proceeding by investigation onward to fact, rather than beginning with a fact and deducing from it?—That would be quite an accurate mode of defining it.

4135. How would you apply that system to other subjects than natural science, for instance, how would you use that method in teaching history?—I don't know that you can do it, that is why I say science-teaching is so important, because it is amenable to a treatment which practically no other subject is amenable to.

4136. Could you apply it to grammar?—To a certain extent, the only subject, I think, to which it could be applied.

4137. Could you apply it to political geography, political geography deals with peoples, sovereignties, republics. I am distinguishing from mathematical and physical geography, in which the method might be of use. Could you teach political geography to any extent at all on your method, how kingdoms are formed, or republics formed; could you teach animal physiology on your method?—No, I think most certainly not.

4138. Could you teach book-keeping on your method?—Well, the connection does not seem to be very clear; what you can do is to utilise the mode of thought; you have induced the children to think, and therefore you have helped them to learn any subject with which they may be brought in contact.

4139. You do not approve of payment by results. You have various teachers in your district following your method, are they of equal efficiency?—Most certainly not.

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4140. Now, don't you think it would be of some use to have a system by which you could test the results of the work done by these men, one man teaches more efficiently than another?—You need not examine every child, and it won't be out of your power to devise a system by which you can measure and apprise the results attained by one man as compared with those attained by another man, and you would not consider them of the same value in the market. It must be a test which is of a very general kind which tests the general intelligence of the class.

4141. Would you not know by intuition a good teacher if you saw him teach for five minutes?—No, you would not, you would want to see him teach a great many times, and for a long time.

4142. Professor FITZGERALD.—Do you think it is possible for any person to tell which is the good teacher and which is the bad one?—It is, if that other person sees a sufficient amount of the teaching, but I don't think it is a thing to be ascertained in a few minutes.

4143. Rev. Dr. EVANS.—You know of the law by which bodies attract each other, they attract directly as to their masses and inversely as to the square of their distances; how would you teach young people to find the sum of the squares by your system?—It is a problem which has not been presented to one before, and naturally it requires a great deal of thought.

4144. How would one obtain the sum of the squares of a series of natural numbers?—It would be easily done experimentally by means of squared paper, and those are the methods which we are always using.

4145. Sir James Ferguson was a very great architect, but he was not, in the usual sense, a mathematician, and when he was challenged to do by his method what is done easily enough by geometry, that is to prove that the square on the hypothenuse of a right-angled triangle is equal to the sum of the squares of the other two sides, he took a piece of cardboard and cut it, and thus did the problem?—That is the experiment we make use of in every school in that particular case.

4146. Do you think you could teach such formulae as I have been referring to by your method?—I believe one could, most certainly. Of course we don't get quite as far as that you must remember in our schools at present, but when I was at King's and at Catford, where one had power to go a good deal further, we made use of a good deal of those methods, and we were able to teach there the principles of many of the earlier books of Euclid entirely by experiments.

4147. Mr. HARRINGTON.—You are aware of course that Ireland is almost entirely dependent on agriculture?—Yes.

4148. Of course the successful carrying on of agriculture depends to a large extent, if not entirely, on observation and experiment?—Yes.

4149. That being the case, do you consider that the introduction of this science teaching, such as is taught under your management, would be better than any other system, for instance wood-work and metal-work, for our Irish schools?—I think they are all excellent, and I don't think one ought to attempt to run one against the other. There is an advantage which I claim for any argumentative course of experimental science which is not, I think, obtained by manual work or hand and eye training pure and simple, as in such work you get hand and eye training, but you don't induce a sufficient amount of brain work; in this you have got your brain working in connection with hand and eye.

4150. If you were asked to introduce a system into a country where it does not at present exist what would you begin with, would you introduce both or one?—I think both, I am not in any way an expert on manual training, and, therefore, any opinion I express must be taken *cum grano*, but, as far as I have seen, I think both are excellent, but I think a course of experimental science fulfils something more than a course of manual training.

4151. Professor FITZGERALD.—Do you think that experimenting can be learned in any way except by making experiments?—I don't think so.

4152. And, therefore, if you want to teach children the method of making experimental inquiry, they must be taught to do it by actually making experiments themselves?—Certainly.

4153. Hand and eye training gives no instruction in the method of making experiments?—No, I think not.

4154. And, therefore, this science teaching cultivates a part of the human intellect, which is distinct, and made to be cultivated distinct from the hand and eye training?—I think so.

4155. You think that peripatetic organisers are able as a matter of fact, to train teachers satisfactorily?—They are able certainly, but I think the system is only one for a time, it ought not to be a system which is necessary, the teachers ought to come out of the training college having learned all we are trying to do for them.

4156. You mentioned discussions as having gone on with your teachers, and Professor Armstrong mentioned it, do you think that is an important part of the training of teachers?—I think it is most important.

4157. Do you think that a teacher could be trained satisfactorily to teach without something of that kind?—I don't think so.

4158. Then the mere seeing another person teach is not sufficient training for a teacher?—I think not, it is not all sufficient but it must do good.

4159. CHAIRMAN.—You don't think that seeing a man driving four horses would teach a person as well as driving them himself?—I don't think so.

4160. Professor FITZGERALD.—You don't think that being doctored by a good doctor makes one a good doctor?—No.

4161. Do you think that the different districts ought to have different subjects for their investigations?—Freedom should always be allowed, wherever you have got an enthusiast you are nearly certain to get good work, and a man is usually more enthusiastic over something he introduces himself than something proposed by somebody else.

4162. You think the enthusiasm of the teacher is of value?—Of the utmost value.

4163. Do you think the habit of investigating enables people to change with the times so that they may not be left behind?—I think so, certainly.

4164. From your experience do you think this teaching has produced an effect on the children in the schools?—I have had that stated by practically every teacher with whom I have had to deal, they did put into print some little time ago an expression as to what they considered the value of the work which had been done, and they said it had produced a marked improvement in the general intelligence of the classes who were doing that work, it was in a testimonial which was given to me personally and therefore of less value than it otherwise would be.

4165. CHAIRMAN.—You stated sometime ago that the teachers came to you, some of them for a one year's course and some for a two seasons' course; do you think it would be advisable as time goes on, and more time has passed since these teachers attended your course, that they should go back again for a course to brush them up?—No, I think as time goes on they will know a great deal more than when they left me, they will learn a great deal themselves by carrying the work out, they all do, they learn a great deal more in two or three years after leaving me than they ever learnt with me.

TENTH PUBLIC SITTING.—TUESDAY, MARCH 23, 1897,

AT 10 O'CLOCK. A.M.,

London.
March 23, 1897

At the Examination Hall, Victoria Embankment, London.

Present:—His Grace the Most Rev. WILLIAM J. WALSH, D.D., in the Chair; The Right Hon. C. T. REDINGTON, M.A.; His Honour Judge SHAW, Q.C.; The Right Rev. Monsignor MOLLOY, D.D., D.Sc.; Rev. HENRY EVANS, D.D.; Rev. HAMILTON WILSON, D.D.; Professor G. F. FITZGERALD, F.T.C.D.; STANLEY HARRINGTON, Esq., B.A.; W. R. J. MOLLOY, Esq.; Captain T. B. SHAW; and J. STRUTHERS, Esq., B.A.;

with J. D. DALY, Esq. M.A., Secretary.

Sir PHILIP MAGNUS, City and Guilds of London Institute, examined.

Sir Philip Magnus.

4166. CHAIRMAN.—You were kind enough to promise to give us your views about the object and advantage of manual training in elementary schools?—Do I take it that this Commission is inquiring only into the question of manual training in elementary schools?

4167. Only for elementary schools; and the subjects with which we have to deal are manual training and practical work generally, including elementary science?—Well, I have personally always been in favour of the introduction of manual training into elementary schools. I think it was in the year 1886, I read a paper at the British Association urging that manual instruction should be introduced into such schools, and from the evidence which you have already received, and from the inspections which you have already made, you will understand that the object of such instruction is not the teaching of any particular trade: it is not the teaching of carpentry and joinery, although the tools employed are those used by the carpenter and joiner, and the material on which the children work is wood. Such training of course might be given with other tools and with other material, but wood is a very easily worked material and the tools employed teach just those lessons which manual instruction is supposed to give.

4168. In some places we have found work done in metal?—Work done in metal is generally of a more advanced character than that done in wood, and I think it advisable that the children should first of all receive instruction in wood before passing on to metal. But I hold it of the utmost importance that lessons in woodwork should be a part of the ordinary curriculum of the school, and that the object of these lessons should be the same as that of all the other instruction, the formation of character. Of course, between the manipulation of wood by means of tools and the formation of character there are naturally a great many steps. But instruction in woodwork may be made the means of training the hand and eye to accurate observation and skill in execution, to truthfulness in work, and to the acquisition of many of those habits which are of the utmost use to a child in after life.

4169. No matter what trade or occupation the child may afterwards go to?—No matter what trade or occupation he may go to, whether he is likely to be a bricklayer, a watchmaker, or a plumber, or engaged in any other trade.

4170. Or whether he may go to some occupation that is not a trade?—Or even if he went to an agricultural occupation, or into clerical work, the habits formed will be of the utmost use. The advantage of the teaching also is that the child is interested in his work. It has been found that by keeping children all day long to mere bookwork they loose interest in their lessons, and I don't know that any change in education has been so effectual in making children take an interest in their work as the substitution of practical teaching for mere book lessons. I believe that the introduction of corporal punishment has become almost unnecessary in consequence of the change of work that is given to the children in schools.

4171. In Sweden I believe the ordinary form of punishment is to exclude a pupil from the woodwork class?—That fully bears out what I have been saying. One might say that whilst the birch was an instrument of education in olden times, the bench has taken its place to some extent.

4172 Then you do not consider that the time taken from the purely literary work is time lost even in the interests of literary education?—It was early in the '80's that I tried an experiment in conjunction with Canon Barnett in London, with the view of seeing what would be the effect of introducing manual training into elementary schools. He had a voluntary school at Toynbee Hall, and asked me to assist him in fitting up a room in that school for manual instruction. The experiment was so successful that it was found the children did equally well in the literary part of their examination; in fact they did rather better in the literary part of their examination after having spent some part of their school time in manual work. The history of the manual training movement in London is interesting. You may know that the London School Board were not enabled to employ any of their funds for manual instruction. They took evidence such as you are taking now. I had the honour of giving evidence before them, and they came to the conclusion that it would be very desirable to introduce practical work into their schools, but they had no funds by means of which they could do so.

4173. About what year was this inquiry held?—This was held I think in 1885. They started a school at Beethoven-street, where they tried the experiment, the teacher there being an ordinary carpenter. The experiment was fairly successful, but they were surcharged for all the expenses, and they

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had no source from which they could obtain the necessary funds. Then they wrote to several of the City Guilds asking if they would assist them, and the result of that correspondence was that the City and Guilds of London Institute offered to supply them with funds in order that the experiment might be well tried. They placed a certain sum at the disposal of the School Board, and a Joint Committee was formed of representatives of the School Board and of the City and Guilds of London Institute with a view of trying the experiment of introducing manual training into elementary schools. Subsequently the Drapers Company gave independent assistance to this committee in the form of £1,000 per annum, which sum they have ever since contributed. The Joint Committee was thus enabled to try experiments in elementary education, which, in my opinion, have been more fruitful in results than any educational experiments that have over been tried in this country.

4174. I have a statement here of evidence given by Professor Perry before a sub-committee of the Board in 1887. Is that the inquiry that you spoke of. I wish merely to identify it?—That probably is; I may be wrong in my dates. I read this paper in 1886 at the British Association. I don't recollect whether the School Board took it up before or afterwards.

4175. Then is it from this special fund which you have described that the cost of the work of manual training is now provided?—No. I should say that the Joint Committee determined upon establishing six centres for instruction in London—three north of the Thames and three south of the Thames, and the result of those experiments was that the Government, on the report of its inspectors, determined to make such alterations in the Code of Education as would enable the School Board out of its own funds to give manual instruction. The experiment therefore was of the most successful character. It proved that the instruction was useful; that it did not interfere with the elementary work; that it improved the education of the children; and the Government, on the results of that experiment, enabled the School Board of London, and all other School Boards throughout the country, to pay for manual teaching out of the rates. The Joint Committee still exists, and having tried that experiment in primary education, determined on trying others. It started laundry work, and subsequently housewifery, and the Government has also introduced those subjects into the Code. Therefore we had in the Joint Committee a body bent on experimental research in education, and the results of the experiments have been most useful. The Joint Committee still exists, and has under consideration other experiments which it is to be hoped will prove equally useful.

4176. I assume you are still a prominent member of it?—I am a member of it; there are several members who are interested in different grades of education.

4177. Can you tell us whether there was any feeling of opposition to the introduction of this manual instruction into the schools, on the part either of the teachers or of the parents of the children?—I don't think that there was any opposition on the part of the teachers or of the parents of the children; there was a fear of opposition on the part of the Trades Unions; there was an impression, which had to be carefully corrected, that by this instruction we should be training up a large number of carpenters and so increasing the numbers of persons who would be likely to join that trade. That impression I believe no longer exists; the carpenters are satisfied that this instruction is of a purely disciplinary and educational character and has no more direct reference to the carpenter's trade than to any other, and the opposition which was feared does not any longer exist. I might perhaps in order to save your time state I am President of the National Association of Manual Training Teachers in this country, and at the first public meeting of that association in 1891 I gave an address, which expresses very fairly my views on this subject, and perhaps you would allow me to put that in evidence.

4178. I see that the six centres you have described have now grown into 104 centres, according to last year's report?—Yes, those are under the immediate direction of the School Board, but six centres still continue under the direction of the Joint Committee. There is another difference between the work of the Joint Committee and that of the School Board. The School Board is unable, I think—except by special payment—to admit into its centres children from the voluntary schools, the Joint Committee of course are very desirous of receiving into their centres the children from any of the voluntary schools in London.

Chairman.—I think we found that they are admitted also into the Board Schools centres, at least into some of the departments.

4179. Monsignor Molloy.—Could you mention the six centres which are under the Joint Committee?—I am afraid at the present moment I cannot, but I would refer you to Mr. Bramley, the clerk of the Joint Committee and minuting clerk to the School Board for London. It is possible that information may be obtained in pages 185 to 201 of the report of the School Board of London from Lady Day, 1895, to Lady Day, 1896. Section 7 of that report gives an account of the Joint Committee. One of the most important considerations it seems to me is the character of the teachers.

4180. Chairman.—Before we come to that there is a point I should wish to ask you about. You seem to confine the term manual training to working in materials such as wood or iron. We found in Birmingham a distinction drawn between hand and eye training and manual training. They apply the term manual training there to work in wood or metal, but by hand and eye training they mean those preliminary occupations that are for children in the lower standards, such as paper-folding, cardboard work, and working in wire. Do you draw that distinction?—That seems a very good distinction to draw. Of course the occupations to which you refer are preliminary to the manual training.

4181. Manual training, in your restricted sense of word, comes in only in the 5th standard?—Only in the 5th standard.

4182. And those other occupations are very appropriate for the earlier standards?—Yes; more directly connected with kindergarten exercises. It is desirable to follow up the kindergarten exercises by such hand and eye exercises, and to follow that up by the manual training.

4183. I thought it well to clear up that point before we come to the question of the teachers?—Might I also say that I consider it equally necessary as part of practical education that the children should have instruction in elementary or rudimentary science, such as no doubt has been indicated to you by Professor Armstrong, who told me he had given evidence before you. I attach great importance to that instruction, and think it desirable that it should be rather instruction in scientific method than in any special branch of science. Its object should be to train the children in methods of accurate observation by means of measurement and simple experiments, which training is of the same character and has the same object as the woodwork to which I have been more fully referring.

4184. Not merely acquiring a knowledge of the facts of science, but dealing with things on scientific lines?—Yes; it is much more important that they

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should learn the methods of science than the information which science itself gives.

4185. Would you also include an exercise in describing what they have seen and done, I mean the results of their experiments?—That is very desirable, and both as regards science lessons and manual instruction, I think it important that the lessons should be made the means of instructing the children in English composition, in arithmetic, and in other subjects which form part of the curriculum of the elementary school. What one wants to do is to unite all these subjects so as to make them part of the discipline and of the education of the child. And in the woodwork as well as in the science lessons it is most important that the child should accurately describe what he is doing, and that this description should be carefully corrected by an intelligent teacher. Lessons in composition, in English grammar, in handwriting, in arithmetic, and in other subjects will thus form part of the general practical instruction which will be given in these subjects.

4186. I take it that you agree substantially with Professor Armstrong in his general view of this question of elementary science teaching?—I do.

4187. And also with Mr. Gordon?—Yes. I had the honour of moving his appointment to the School Board for London when I was a member of it. When manual training was first introduced applications were made from the County Councils throughout the country to the City and Guilds of London Institute asking them whether they could draw up some suggestions for the guidance of teachers of evening continuation classes in woodworking, and we formulated suggestions which were circulated among the County Councils in the country. They may be some use to you (*produced*).

4188. You were about to say something about the qualification of teachers for the special work of manual training?—The consideration of the qualification of teachers is a matter which engaged the very serious attention of the Joint Committee when it was first started. There were two suggestions made, the one was that if you want to teach carpentry or woodwork, the best thing is to engage a carpenter to teach it, one who thoroughly understands it. The objection was that the teacher would instruct the children too closely on the lines of the apprentice in the workshop. To give the instruction that strictly educational character which those who were advocating it were desirous it should take, another suggestion was to select teachers of elementary schools who had been trained and received their certificate, and give them sufficient instruction in carpentry to enable them to teach children. The City and Guilds of London Institute rather favoured the latter idea, and accordingly they started at their central college at Kensington, under Professor Unwin, the Professor of Engineering, a class for the training of teachers in woodwork, and several teachers were trained in that school. When the Committee came to appoint its teachers they thought the best thing was to try the experiment of appointing teachers of both classes. They therefore placed three of their centres under the direction of Mr. Barter, a highly educated artizan, and the other half of the schools under the direction of an elementary teacher who had been trained at the central school. I am sorry to say that the experiment has not been as fully tried as I should have liked to have seen it, because a short time after his appointment Mr. Pearson, the elementary teacher, received a call to Liverpool, and he has since had charge I believe of all the manual training centres in that city. When Mr. Pearson withdrew to Liverpool, the Committee were so satisfied with the ability displayed by Mr. Barter, that they placed all their schools under his direction, and since then the School Board of London has appointed him organizing instructor.

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4189. Is he organizing instructor for all the centres?—For all the centres. Of course *a priori* it would seem that the elementary teacher would make the better instructor because he would be able more directly to give the instruction the disciplinary character which it ought to have. But in London there are a very large number of artizans who are teaching woodwork and doing so successfully. It is necessary if one employs artizans that these men should receive instruction in the methods of teaching, and that it should be clearly explained to them that they are not to teach the children as they would teach apprentices in a carpenter's shop. I believe that in France the teaching is mainly in the hands of the elementary school teachers. The children are not drafted into centres as they are in London, but each school is enabled to give instruction in woodwork to its own pupils, in the same way as instruction is given in arithmetic or science or geography or any other subject. Personally I believe that would be the better system, but it has not been developed in London, and we are very well satisfied with the results of the instruction now given.

4190. We met Mr. Barter yesterday; he seems to have quite taken up the educational view of the case as distinct from the trade view?—It is satisfactory to know that those artizans who have been engaged in giving instruction to children in elementary schools have come round to the view of the importance of the disciplinary character of the teaching. I might instance another successful artizan teacher, Mr. Degerdun, who is head of the Shoreditch Technical School, and has a good class for the training of teachers.

4191. Is that for the training of teachers in manual work?—Yes. I should state that since 1891 the City and Guilds of London Institute, which has taken great interest in this question, and was desirous of affording means for the training of teachers in woodwork, not only in London but throughout the country, has prepared a scheme of instruction on which an examination might afterwards be held. This course of instruction is intended to last two years, and at the end of that time candidates are examined, and if found competent receive a certificate which sets forth that they are qualified to give instruction in public elementary schools.

4192. Judge Shaw.—In manual training?—In manual training. The first year's examination comprises practical work at the bench and drawing, and the second year's examination more advanced work at the bench, more advanced drawing and also a written examination in the methods of teaching woodwork. The number of applications for examination from teachers in public elementary schools has been very large. In 1892, 615 candidates were examined, in 1893, 1,141, in 1894, 1,766, in 1895, 1,543, and in 1896, 1,168. The numbers have fallen slightly off, not through any want of interest in the subject, but probably because most of the teachers who cared to receive instruction have already presented themselves for examination. These teachers, of course, are scattered about the country and are no doubt now giving instruction in this subject.

4193. The necessity for specially trained teachers does not exist so much for the earlier work, the cardboard and the paper-folding, as for the manual work?—Not to so great an extent, but still the teacher ought to clearly understand that the main object of the instruction is education and not the acquisition of any particular skill.

4194. Professor Fitzgerald.—Are these primary school teachers?—Yes, all of them; I put in the last report on the results of these examinations.

4195. Judge Shaw.—Is every candidate who goes in for the examination compelled to go in for a two years' course of training?—Yes. It is not open to outside candidates. He must produce a certificate of

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having received at least twenty lessons before he is admitted to the first examination. The applications from outside persons to obtain the certificate are very large, but they are all refused. The object is to secure evidence of the fact that the teacher has received the necessary training. I don't know that I can state sufficiently impressively the importance of securing training rather than information as determined by the results in examination.

4196. Monsignor MOLLOY.—You say the year's course consists of twenty lessons?—Of at least twenty lessons of two hours each.

4197. Then it does not extend over the whole year?—The lessons are generally given on Saturday mornings throughout the year and occupy two or three hours. The Institute discourages holiday lessons. It is not able to prevent them, but it does not allow two lessons to be given on the same day, for it is felt a certain interval is necessary between the lessons.

4198. For digestion?—For mental digestion.

4199. CHAIRMAN.—In the schools the lessons are given at the rate of one a week in manual instruction?—One a week in the schools themselves, sometimes two a week when they are shorter. I don't know what is the constitution of local authorities for educational purposes in Ireland, but I think it is very important that for the superintendence of elementary or any other branch of education the controlling body should consist of persons who really know something about education. I have no hesitation in saying that I think a mistake was made in the year 1870 in the constitution of our School Boards for England. I think that the ratepayers who contribute the money should be represented, either directly or indirectly, upon the School Board, but I am strongly of opinion that the local authority in charge of education ought to comprise what Matthew Arnold called "the knowers and lovers of education," persons who cannot possibly be selected by any method of popular election. Such elections too often turn upon questions very different from the qualifications of the persons for controlling and looking after schools.

4200. You are speaking of the result of the elective system on the constitution of the School Board generally?—Yes.

4201. Of course individuals who are highly competent may be elected, and no doubt are elected, under this system?—There are a certain number of highly qualified persons who have been elected upon our School Board, but they do not form anything like so large a proportion of the Board as I should like to see.

4202. But in the interests of education you do not think the system of popular election to a School Board is a good one?—I do not; I do not think that all the members should be elected that way.

4203. Do you consider that in our modern educational methods, there is a danger of over-examination?—Yes. What we have to aim at rather is the teaching than the examination of our children. The abolition of the system of payments by results has I think been very useful. Any tendency to subject children to constant examination interferes very largely with the work of the schoolmaster and also with the progress of the pupil, and, what is worst of all, it sets before the schoolmaster and all concerned a wrong idea of what should be the real aim of education. The passing of an examination comes to be considered as the end towards which schoolmasters should work, and the end which the governing body look to, whereas what one wants to see is, that the children are really properly trained; and it is almost impossible to determine whether they have been so trained by the mere result of an examination. Occasional inspection is much more useful.

4204. On what points should the inspector report as the result of his visit?—The inspector ought to report on the method of teaching, upon the sympathy which exists between the teacher and his pupils, upon the interest which the pupils themselves take in the instruction, upon the scheme of instruction which is laid down, points of that kind are far more important than mere results as determined by any examination. At the same time examinations by the teachers for the determination of the progress of their own boys are of the utmost value, and occasionally, of course, examinations must be held for the selection of candidates for higher places, or for other purposes. But the constant examination of children and the holding up before children as their aim, the passing of an examination seems to me to interfere with the true purpose of education.

4205. Judge SHAW.—Would it not be necessary for the inspector occasionally to test the efficiency of the methods by examination?—By oral or written examination as he may think best, but that would be a very different thing from a competitive examination.

4206. CHAIRMAN.—The abolition of the system of individual examination for results would enable the inspectors to pay more frequent visits to the schools?—Yes, it would be very desirable.

4207. Judge SHAW.—There is one point on which I wish a little more information for myself—the distinction you draw between the giving of manual instruction from an educational point of view, and the mere trade point of view. I should like if you would in a little detail tell us what exactly is the difference in method between teaching a boy to work, say, on wood with a plane from the educational point of view and from the carpenter's point of view?—Well, the element of time, which necessarily enters into the commercial, is excluded from the educational aspect of the question. A teacher can spend any amount of time in explaining to a pupil when he is teaching him for the purpose of education, and he will endeavour to draw from the lessons he is giving, intelligent questions from the child himself. Then, again, in trade teaching it is absolutely necessary that the pupils shall acquire dexterity in doing a particular manipulative operation. It is not necessary that such skill shall be obtained when the lessons are intended for educational purposes. For commercial purposes the same operation must be continually repeated until the child or the pupil can perform it very rapidly and with great dexterity. As soon as the principle underlying the operation is understood the manual instructor dismisses that operation and takes up some other. A different spirit pervades the teaching from the beginning to the very end. In the carpenter's shop a person will be employed doing large pieces of work which don't involve, perhaps, any particular principle, whereas in the manual instruction classes every lesson must have for its object the elucidation of some principle or the teaching of the use of some particular tool. Then, of course, in the explanation of the use of the tools themselves a large number of educational principles may be brought out. Every tool is shaped in the particular form in which it is shaped for some particular reason—there is a history attaching to it. Information of this kind is itself a lesson of very great value to the child, but all the ordinary apprentice wants is to be able to use the tool with the greatest possible dexterity.

4208. Then the difference is not a difference in the material result aimed at but in the method?—There is a difference in the method and also in the result because the same dexterity is not required.

4209. I am not speaking of the manual or mental result. I am speaking of the material result—the same sort of chair or box, or whatever the pupil is making, is made?—No. I take it the same sort of thing would not be done.

4210. CHAIRMAN.—Is there not this distinction, Sir Philip, that in the manual training the piece of work turned out is the work of one individual pupil, while the chair made in the carpenter's shop might be the work of half a dozen people?—That would be so, of course, but in manual training the purpose of the training is not to produce objects but to give exercises, there may be no result whatever beyond the mere exercise in the piece of wood. They may not make any useful objects at all. It is found desirable to interest children by allowing them to make some useful object, but that is no necessary part of the instruction.

4211. Judge SHAW.—From that point of view an ordinary artizan would be probably useless as a teacher?—Unless he had been trained in this method of instruction.

4212. The artizan who had learned his trade by rule of thumb would have no idea of teaching it, except he had been taught himself?—He would not know what you were aiming at.

4213. Therefore in a country like Ireland, where this instruction was being introduced for the first time, you would not think it possible to get any number of artizans who would be able to do efficient work as teachers?—I should not like to say that, if the artizans went through a course of lessons in the methods of instruction. The best thing for an artizan would be to go to a training college for a year and receive instruction there, but I daresay it would be difficult. The problem is difficult, I am not prepared with a solution; it is a problem in which I am engaged suggesting a solution at the present moment. But I don't think the artizan will make a bad teacher, if he gets the proper teaching, and is enabled to grasp clearly the educational object he has in view.

4214. It would be a very superior class of artizan that would be even capable of being trained in those methods?—Yes; that is so.

4215. Not the ordinary rule of thumb artizan?—He would be useless as an instructor.

4216. CHAIRMAN. — And he might even be worse than useless?—Yes.

4217. Judge SHAW.—The teaching of elementary science by experiments, Sir Philip, is not that a training for the hand and eye quite as efficient as doing woodwork? Suppose a boy in a school is put to experimental work for himself in elementary science, to work out experiments where he has to accurately weigh?—I don't think that covers the ground as fully as manual instruction together with elementary science. The first thing an investigator has to do, is to make certain apparatus for himself, and the manual instruction which he would receive would be extremely useful to him in enabling him to fit up such apparatus. Then one advantage of manual instruction, to which I have scarcely referred, because I have been dwelling on the educational aspect of the problem, is the skill the child acquires, which is undoubtedly useful to him in every kind of work, and is particularly useful to a person engaged in scientific investigation. The power of constructing apparatus for oneself, for any experiment, is of great value, and I should be sorry to have it supposed that I don't attach importance to the acquisition of such skill.

4218. In Ireland we have to deal—and I suppose in primary schools everywhere—we have to deal chiefly with boys who will be from 13 to 14 years employed all their lives in nothing but manual work, do you not think that instruction in elementary science would be more useful to boys of that sort, something they would not have an opportunity of acquiring afterwards, than the mere teaching of the use of their hands which they will be learning all their lives?—I think it equally important that they should have lessons in elementary science, and I should consider no scheme of education complete in which such lessons were not given. I believe manual instruction will be found to save the boys' time when they enter the workshop, and the intellectual training they will derive from it will also be of value. It is very difficult to say which one would prefer, the scientific exercises or the manual training exercises, I think for a complete curriculum each should form a part.

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4219. CHAIRMAN.—An earlier beginning could perhaps be made with the science than with the manual training?—I should think about the same time.

4220. Judge SHAW.—It has occurred to me that manual training for a boy of thirteen or fourteen is of more importance to the boy who is not likely to be employed in manual labour afterwards than for a boy who is. The boy who is going to be a barrister or clergyman will get manual training which he will never get afterwards, whereas a boy going to manual occupations afterwards requires chiefly to have his brains exercised in his boyhood?—I think it is quite as important for a boy who is going to work afterwards with his hands, because, in consequence of the manual instruction he has received, he will afterwards take a more intelligent view of the work he has to do in the shop.

4221. A boy who has been trained this way in school you think would be a more educated and intelligent artizan than a boy who has merely got his training in the workshop?—Far more likely, he will be less likely to fall into rule of thumb methods.

4222. Mr. HARRINGTON.—You spoke of some of the voluntary schools here, Sir Philip, to what extent is this system of instruction in elementary science organised for the voluntary schools and how are the funds provided?—The Government pays grants in all schools.

4223. Is it organised to a large extent for these voluntary schools?—I scarcely think that it is organized to the same extent as in the Board schools. The School Board has an organizer who looks after all the instruction, the voluntary schools are not associated together so as to have any joint organizer, they are more independent.

4224. Judge SHAW.—I understood the pupils from the voluntary schools attended the same centres for instruction as the Board school pupils?—So I understand.

4225. Mr. HARRINGTON.—Have the Joint Committee been instrumental in introducing this manual training unto the voluntary schools as well as the Board schools?—Oh, yes.

4226. So we may take it that without this Joint Committee, which is equivalent to a local committee, this thing would not have been started if it was left to the initiative of the Board itself?—I cannot say; the Joint Committee came into existence on the initiative of the School Board itself, the School Board invited the members of the Guilds to assist them, it was through a letter addressed by the School Board to the Guilds' Institute that the committee came into existence.

4227. In Ireland the tendency in the National schools is for the children to become clerks to a very large extent and to seek any employment that is other than manual I may say, previous to the inauguration of this system of manual training in your schools here was there a similar tendency amongst the boys?—Yes.

4228. As a result of the manual training has it changed that tendency of the boys; do they now seek trades and occupations in which scientific and manual work will come in more than they did formerly?—I could not answer that question. Possibly Mr. Barter may be able to answer it, but it would have been necessary to have followed the careers of the children and to have made an accurate comparison between the number of children entering different

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occupations both before and after the introduction of manual training. Personally I have not been able to make that investigation.

4229. Mr. Struthers.—I think you said that you would not teach metal work to boys who had not been already through a course of woodwork?—As a rule.

4230. Not even where the metal industries are the chief industries of the district?—It may be desirable where the metal industry is the special industry of the district.

4231. The reason I ask you is that in Birmingham they teach metal work to boys who have not been through the woodwork training at all?—They may have good reasons for doing so.

4232. Then there is this question of experimental science and manual training. Apart from the manipulative skill acquired by manual training, do you think there is a great distinction between the mental and disciplinary effect produced by manual training and that produced by training in elementary science. Putting aside the manipulative skill acquired, and considering only the disciplinary and mental training given by those two branches of instruction, do you think they are different in kind?—I don't think they are different in kind, but I should think the lessons in experimental science afford opportunity for a higher degree of intellectual training than exercises in manual training, and for more variety of intellectual exercise.

4233. But of the same kind?—Of the same kind; it is essentially measurement and observation, and the results of observation.

4234. Training in accuracy and judgment?—Quite so.

4235. Then you think it advisable to have both experimental science and manual training in the same school?—Certainly.

4236. You would not recommend them as alternatives?—No, I think I would have both

4237. Not even if the time you had to give to both subjects would make it necessary to displace some other subject in the school curriculum?—It would depend on the subject you would displace.

4238. Such as English grammar?—I would displace English grammar for either of those, I think a child may learn all the grammar he requires in the correction of the notes to his exercises.

4239. Seeing these two subjects give very much the same kind of training, would not such a combination as this be suitable:—hand and eye training up to standard 4, followed by experimental science in the higher standards. I think you said experimental science gave a more advanced training?—You would lose training in woodwork then. I don't think that advisable. I think the training in woodwork is so useful that two or three hours a week spent on it would be found profitable.

4240. In addition to two or three hours spent on experimental science?—I think so.

4241. So that you would not regard this combination of manual work in the lower standards and experimental science in the higher standards as a good scheme in order to retain English grammar?—No.

4242. I think in your opinion the question of the artizan teacher as against the trained teacher, who had received special instruction in manual work, has not been quite settled yet—your experiment in London has not been conclusive?—No. We have succeeded in obtaining a large number of very good teachers who have begun life as artizans.

4243. But most of the assistant teachers under Mr. Barter are artizans?—They are.

4244. Who have had special training in this method of teaching?—That is so, he himself gave lessons to them in the method of teaching.

4245. Are any of these certificated teachers, do you happen to know?—I don't think any very large number. A great number of the London teachers have obtained certificates for giving instruction in manual training, but I could not tell you the extent to which they are using it, I think an appreciable number are.

4246. There is a large number of teachers throughout the country who have taken the City and Guilds certificate, and will be qualified to give this manual training in schools?—Yes.

4247. I suppose you have no notion as to the extent to which these teachers give instruction?—No, I am sorry to say I have not.

4248. Take a rural district, it would be scarcely possible to have there trained artizans as you have in London. If manual instruction is to be taught in rural schools it must be by the ordinary teacher?—I think so, otherwise you will have a very incompetent carpenter brought in to give the instruction.

4249. So that it would be very desirable to continue and even extend this process of the training of elementary teachers?—I think so.

4250. The distinction between educational work and carpentry might be put this way:—the educational manual work assists in setting pupils a series of problems, not in giving them exercises to develop skill purely?—That is so.

4251. Captain Shaw.—Might we have some small detail as to the syllabus followed in manual training, do you consider it desirable to lay down any particular syllabus for work?—Considerable freedom ought to be left to the teacher, but indications of the kind of work he should do should certainly be laid down in the syllabus.

4252. As regards the London syllabus, do you approve of much mechanical aid being given in executing the models?—What do you mean by mechanical aid?

4253. Shooting boards and special methods of holding the different pieces of work?—No, I think the tools should be of the simplest character.

4254. You think more education is got by the simplest tools and simplest appliances?—Yes, generally.

4265. I suppose the work should be as varied as possible so as to bring out the use of as many of the tools in as many different ways as possible?—That is so.

4256. Do you approve of a large amount of inlaying work?—No, in the more advanced work a certain amount of inlaying work involves useful exercises, and is found to be interesting to the children, but a large amount of it is certainly not to be approved of, nor is it necessary.

4257. In the artizan teacher there is one thing which he is very liable to which is to introduce trade tricks and short cuts?—They should be avoided.

4258. In London you have a system of exhibitions of the school work in the different schools once a year, do you consider that advances the work, or would you say it had somewhat the same effect as the results system?—It is interesting by means of such exhibitions to see the progress made. It enables the teachers to see the work done in other schools, and the public also can appreciate what is done.

4259. Does it not rather tend to make them work for these exhibitions and bring on specially good boys to produce work creditable to the school instead of training all round?—If that is done it is objectionable, but if the work is taken from the ordinary work done by the pupils I can see no objection. Anything that leads to mere drill in manual work is quite as bad as cramming in literary work.

4260. Drawing is an important part of manual instruction?—Very important, drawing to scale.

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4261. That is taught incidentally with the manual work?—It is made an essential part of the instruction.

4262. And the students get rather a clear grasp of practical geometry?—Yes.

4263. Have you made any estimate of what school time—if you take a course of hand and eye training in the lower standards and elementary science teaching and woodwork in the upper standards—what time in the week should be devoted to these?—Either two or three hours a week.

4264. To both or for each?—Two to three hours a week for manual training, and two hours a week to science.

4265. Mr. **Struthers**.—In standard five, say?—Yes.

4266. Captain **Shaw**.—Does not the experimental science lead to fundamental principles more than the manual training, it may have that advantage over it, it gives ideas for original research and for the development of originality in the children?—It does.

4267. More than you would get from manual training alone?—Possibly more, it is a higher intellectual exercise, I think I already stated that.

4268. From your experience of schools abroad and in other places, could you suggest any way by which manual training might be introduced cheaply into small schools without constructing workshops and benches and the usual fittings?—I have seen benches that might be employed for other purposes, but it is very difficult to do without the necessary fittings: they are not necessarily expensive.

4269. Do you attach much importance to the making and completion of actual models by the children?—No; I think the object of complete models is rather to interest the children than to afford any special exercise.

4270. Professor **Fitzgerald**.—But you think it is important to interest the children?—I think it is important to interest the children, but too much stress ought not to be laid upon it any more than on any other exercise given to the children; children have not been particularly interested in exercises in Latin composition.

4271. Do you not think that has been a misfortune?—I think it has.

4272. Mr. **Struthers**.—Several plans have been devised for giving more interest to Latin compositions?—Yes, I believe several have been devised lately.

4273. Captain **Shaw**.—You do not think it necessary that everything should be a completed model?—No, I think not.

4274. Mr. **Molloy**.—In small schools where there is only one teacher, what minimum would you suggest for elementary science and manual teaching?—I think two hours for each would enable the pupils to make satisfactory progress.

4275. **Chairman**.—You probably are not aware that our obligatory school hours in Ireland are four a day, much shorter than in England; would that modify your views?—Then I think under these circumstances three to four hours a week would be sufficient.

4276. Mr. **Molloy**.—Have you had any experience of Irish teachers receiving instruction in the City and Guilds of London Institute?—I am not able to identify them, I could let you know whether any Irish teachers have obtained the certificate.

4277. What is the minimum time that would be required by teachers, say from places outside London, to receive your instruction and qualify for a certificate?—They must go through a course occupying two years.

4276. They should be in London during that time?—No, they can receive this instruction in any part of the country under a qualified teacher. Classes are held in nearly all the large towns, in connection with the chief technical schools throughout the kingdom.

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4279. The Irish teachers would require to come to some large place in England and settle down for two years?—Or else establish a school in connection with some technical establishment in Ireland, such as the Technical School in Dublin, or the Science and Art classes in Cork, or the Technical schools in Belfast. An instructor might be found in one of those schools to give instruction.

4280. By the Technical School in Dublin, do I understand you to mean the Royal College of Science?—No, I think the Kevin-street school.

4281. That however is chiefly for the teaching of trades?—It is, but there would be probably someone there who is teaching carpentry and joinery to artizans who might be capable of giving instruction to elementary teachers. It is not so important to have a highly trained teacher to give instruction to elementary teachers as it is for school children. What the carpenter lacks, the elementary teachers themselves would be able to supply from the training they had received.

Mr. **Molloy**.—The young men attending the Kevin-street schools are generally from sixteen to twenty-four or twenty-five years of age, and in fact in connection with carpentry it is a mere artizan who gives practical instruction.

4282. Monsignor **Molloy**.—Do you consider that the training colleges where the teachers are trained would be the proper place to teach the teachers the art of carpentry?—That would be the best place.

4283. And the art of teaching?—Yes.

4284. In the first instance we should probably have to import from you, or from some trade institution in this country, a teacher who could teach the teachers?—That would be the best plan. I assume in the training colleges they are taught the art of teaching.

4285. But not yet the art of teaching carpentry?—No, but the same principles would be applicable to the teaching of one subject as to the teaching of another: what the elementary teacher requires is skill in the use of tools.

4286. Mr. **Struthers**.—But then there is the question of training teachers who have already passed through the training colleges?—Then they must receive instruction from some trained carpenter.

4286a. **Chairman**.—The same difficulty would apply in the case of drawing, the teachers who are untrained in drawing would have to be trained in it, and trained in the teaching of it?—Absolutely essential.

4287. Mr **Molloy**.—The Technical Schools, Kevin-street, undergo examination by the City and Guilds of London Institute in connection with dress-making. Are you acquainted with the manual instruction in any Irish school?—It is a long while since I was in Ireland. I saw the manual instruction that was being given there in 1882, I think, or 1883.

4288. Was that at Marlborough-street?—At Marlborough-street.

4289. Professor **Fitzgerald**.—When you were over on the Commission?—Yes.

4290. Mr. **Molloy**.—What impression was left on your mind, it was in an initial state at the time?—Very initial.

4291. What impression was left on your mind by the way they set about it?—I think the way they were setting about it then was very good, but I should be sorry to pronounce any opinion on it after so many years.

4292. Did it strike you that they were aiming at making certain objects instead of giving educational instruction to the pupils?—I did not see any objects made, only the models for instruction.

4293. Rev. Dr. **Wilson**.—You recommend that a lesson in woodwork should be a part of the ordinary

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curriculum, do you find any difficulty in getting room for all the pupils to work at this woodwork?—Well, it would only be the pupils of the upper standards who would receive instruction in woodwork.

4294. Would an ordinary workshop accommodate all?—That would depend on the size of the school.

4295. It could not be given in relays without dividing the class into two or three?—Oh, certainly, there is no necessity that all the instruction should be given on the same day, one class might come on one day and another a second day.

4296. CHAIRMAN.—Do you not take them in batches of twenty in the London schools?—In batches of twenty.

4297. So that one school with accommodation for twenty would accommodate 200 pupils in the course of a week?—Yes.

4298. Professor FITZGERALD.—In Irish schools girls are required to do needlework for an hour a day, that is five hours in the week. Do you not think it is a very unfair thing that the boys should have no corresponding manual training for five hours a week?—I am not prepared to speak about the fairness or unfairness of the question, I think it is very desirable they should receive manual instruction.

4299. CHAIRMAN.—Do the boys here learn needlework?—The boys in London do not learn needlework to my knowledge.

4300. Professor FITZGERALD.—They do in some schools in the kindergarten?—I think in a school I saw in Dublin belonging to the Christian Brothers they learned needlework. It was a very interesting school.

4301. You think any ordinary school teacher could be taught to give this instruction?—I think so.

4302. It would have to be in addition to the ordinary instruction that at present is given in the training colleges?—Yes.

4303. Do you think it would require them to spend an additional year in the training colleges to obtain it for the future?—No, I should think that was scarcely necessary, it might be taken together with the other training. I believe such instruction is always given in the training colleges in France. At the Paris Exhibition of 1889 I saw splendid specimens of the work of teachers from the training colleges.

4304. You know what is done in American schools?—No, I could not say definitely.

4305. Do you think it desirable that teachers should have liberty to choose the specific course that they are to adopt, or that the district should have the choice?—Specific course of what?

4306. Specific course of woodwork; you don't, for instance, think that Liverpool is doing any harm in adopting a different course of woodwork from London?—I don't think the difference is very great, the selection of subjects will be found to vary within narrow limits.

4307. In introducing this into London there was a considerable amount of experimental educational work tried at first?—Yes.

4308. Would that be necessary if we were introducing it into Belfast?—I think not; you would have the advantage of the experiments already tried.

4309. Has this course of manual instruction been imposed or forced upon any locality?—Not that I am aware of.

4310. It is not a compulsory subject in any place?—No.

4311. Is it compelled by the School Board?—I think the School Board does insist on it, but I had better not answer that question.

4312. Has it been left entirely to the teacher to choose?—Oh, no; it is left to the school authority.

4313. Do you think the change from the method of examining by results to the present method of examining by inspection has produced good results on the teaching?—I think it has improved the results, and increased the freedom of the teacher, and his sense of responsibility.

4314. You think the education of the children has been improved?—I feel it must be improved.

4315. Matthew Arnold says that no matter how ingenious the examiner the teacher can always circumvent him and produce the appearance of education without its reality. Do you agree with that?—Some teachers are very clever.

4316. It is the recommendation of some school authorities that the apparatus required for science teaching might be made in the manual instruction class, do you think that is feasible?—Not the whole of it; I think some of the apparatus might be made by the pupils who had passed through the manual instruction class.

4317. Would you agree with this distinction between manual instruction and scientific training—that one was an education of the experimental faculty, and the other was an education of the constructive faculty?—Well, there is more opportunity for the exercise of the experimental faculty, if there be such a faculty, in science than there is in woodwork, but of course one has to be certain about the existence of this faculty before one answers the question.

4318. Perhaps, if I said experimental ability and constructive ability?—I think the science teaching will develop the experimental tendency to a greater extent than the manual instruction; both will equally develop the observing faculty and, to some extent, the reason.

4319. Does not the science training rather lack in training of the constructive ability which would be supplemented by the manual training?—That is so.

4320. The art of drawing would be an education in the æsthetic powers?—Not necessarily; that is also an exercise in measurement, and accuracy, and neatness, but not to so great an extent in taste, because the drawing we are speaking of is geometrical drawing.

4321. Do you not think there ought to be an education in the art direction?—Yes; I think freehand and model drawing are very necessary subjects of instruction, but I have not been referring to those.

4322. Do you think that an education of this kind enables people to change with the times, so that a carpenter engaged in a trade—if fashions happened to change—would be able to change with the times, and not be entirely dependent on the fashions staying exactly as they have been?—I think any education which helps to develop largely the intelligence of the child has that effect, and this education does help to develop the intelligence and, therefore, it would be likely to have such an effect.

4323. Monsignor MOLLOY.—I understand that you are in favour of teaching the elements of science and of manual work in all elementary schools as far as possible?—That is so.

4324. And, in manual work, you include a certain amount of teaching of drawing?—Oh, yes, that is essential.

4325. Do you think it desirable to have drawing taught outside of what is taught necessarily in teaching woodwork?—That is a question of some little difficulty; but, I think, that drawing lessons should be made to correspond, as far as possible, with the woodwork exercises; but, possibly, additional instruction in drawing would also be necessary.

4326. When drawing is taught in connection with woodwork it is taught with a view to its application to that particular kind of work, is it not?—Yes.

4327. Would it not be also desirable to teach drawing as drawing simply?—Are you speaking of geometrical drawing?

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4328. No; of drawing generally?—I was speaking of geometrical drawing.

4329. Would you limit the teaching of drawing in schools to geometrical drawing?—Oh, no; I would let a child learn freehand and model drawing, if he had a taste; but, every child can be taught geometrical drawing, and every child likely to be engaged in any trade must learn geometrical drawing. I think freehand drawing is also important, in so far as it is necessary to enable a child to make a sketch of any object from nature; but to teach a child freehand and model drawing — who shows no aptitude for drawing—may be, to a certain extent, a waste of time.

4330. But, within certain limits, you think it desirable for all children?—Yes.

4331. CHAIRMAN.—Would you not introduce drawing at a much earlier stage than woodwork?—Yes; it should be introduced in the kindergarten.

4332. And kept on throughout the course?—Yes.

4333. Monsignor MOLLOY.—That being so, should you consider it desirable that, in all the training colleges, the teachers should be all taught the elements of science, woodwork, and drawing?—I do.

4334. And that they should be all capable of teaching these subjects?—Yes.

4335. I take it that in a small school it would be desirable that one teacher should teach all those subjects to his pupils?—It would be necessary in a small school.

4336. But in large schools it would be necessary to have special teachers of the elements of science, and in woodwork, because as we have seen it is necessary to divide the pupils into batches, and extend the teaching over the whole of the week?—You would find certain teachers show more aptitude for one kind of instruction than another, and it would be well to place the teaching in the hands of those teachers.

4337. And from the nature of the case in a large school, it would be necessary to divide the pupils into batches?—Yes.

4338. To teach these subjects in an ordinary elementary school would require at least five to six hours a week?—Including drawing, yes.

4339. How would you suggest that these five or six hours should be got; would it be by adding to the present number of school hours, or by taking these hours from other work to which they are devoted at present?—If the number of school hours is at present only four hours per day, I see no reason why the number should not be slightly increased, but of course I do not know the condition of instruction in Ireland sufficiently well to give any definite opinion upon it.

4340. CHAIRMAN.—You are, perhaps, not aware that in Ireland there is but one school session during the day, the school hours are all but continuous: in England you have a morning and evening session?—Without knowing the special reasons for the difference, I should say the English system was the better.

CHAIRMAN.—There is a very large proportion of rural schools in Ireland, and that probably makes it inconvenient to introduce the two sessions generally throughout the country.

4341. Monsignor MOLLOY.—I think I understood you to say that you object to the system of payment by results?—For children in elementary schools I strongly disapprove of it.

4342. Then, do you think that the income of the master, if he comes up to a certain standard which secures a favourable report, ought to be quite independent of the success of his teaching?—I think that the governing body would be justified in advancing any teacher who showed special aptitude at his work, but I think his income should certainly be quite independent of any immediately ascertainable results of the instruction he had been giving to the children as ascertained by examination.

4343. In Ireland the governing body is usually the manager, and he cannot advance his teacher higher than to make him a teacher, but he can keep him or dismiss him?—If he is incapable the best thing is to dismiss him, but I don't contemplate his being incapable.

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4344. But I contemplate his being quite capable, and coming up to the minimum standard which is sufficient to secure a favourable report from the inspector; and I ask if you consider all who come up to the minimum standard should get exactly the same income?—I don't see why they should not.

4345. Professor FITZGERALD.—All the salaries of the teachers are paid in Ireland from the Head Office, there is practically no local contribution, that is divided into two parts, one part a constant one, depending on his classification, and the other part is a variable one, depending on the results of examinations each year?—I think the teacher should be paid quite independently of the results.

4346 Monsignor MOLLOY. — Then, there is no incentive to the teacher to do more than come up to the minimum standard, so far as his income is concerned?—I take it every well-trained teacher tries to do his best.

4347. Suppose you have 8,000 teachers engaged in teaching through the country, do you suppose that those 8,000 teachers all do their best; do 8,000 people in any other profession all do their best?—I don't say they do, but they are not paid by the results of their success.

4348. In other professions it is usual to pay a higher rate for more efficient work?—I think a teacher ought to live in that calm atmosphere that he should have his income assured to him without being dependent on the work of any particular child.

4349. Every teacher has a fixed salary, which he receives for certain if he comes up to the minimum standard of efficiency required; and the question I raise is whether it is not desirable, as an incentive to extra efficiency, to give an extra allowance to those who receive a report of extra zeal and efficiency?—I think on the whole it would do more harm than good

4350. What harm?—I think the teacher would always aim at getting results from the work of his pupils rather than at giving good, sound instruction.

4351. I have not used the word results at all, because I find it is in bad odour; but what I contemplate is that the Inspector gives a report of the condition in which he finds the school, the efficiency of the teaching, the state of the equipment, the interest which the pupils take in their work, and, in a word, the general success of the teacher in carrying out his work. If that report represents the minimum standard of efficiency required, the teacher gets his salary; according to your suggestion, no matter how much he exceeded that standard he would get nothing extra The question I raise is whether you would not think it desirable that if he exceeded that standard by a considerable amount he should get some extra grant for his extra zeal and efficiency?—I think his work ought to be its own reward. If there is any chance of preferment for teachers of schools who are found particularly excellent, such teachers would have a better opportunity of obtaining that preferment than other teachers, but it would be very difficult to assess by money rewards the zeal or energy which any teacher may display in the discharge of his duties.

4352. Professor FITZGERALD.—You think reputation is the best incentive?—I think it ought to be sufficient.

4353. Monsignor MOLLOY.—You pay him for his work by his salary up to a certain standard?—You do.

4354. Then why is there an objection to pay him for his work above that standard by an extra grant?—I see very great difficulty in ade-

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quately assessing, as I have stated, the extra zeal and energy which he displays, and I think the teacher ought to consider it sufficient reward to find his pupils advancing, and to obtain a satisfactory report from the inspector and the assurance of the satisfaction of those under whom he is working. If there is any chance, as I have said before, of his obtaining some higher position in some other school, or elsewhere, the reports which he would bring with him would be an excellent testimonial.

4355. Then he has no incentive to do more than come up to the minimum standard, so far as income is concerned?—That is the way with many other people receiving fixed salaries.

4356. Is there any class at present in the City and Guilds of London Institute for the teachers in woodwork during the holiday time to which Irish teachers could come?—No, the City and Guilds of London Institute has no classes immediately under its direction at the present moment. Classes were held some years ago, but now that classes have been established in different parts of the country, it is not thought necessary to continue them.

4357. Mr. Redington.—Could you tell me in what points this manual work is so superior to drawing as to necessitate its introduction?—There is the great difference that the child works in a solid material, whereas in drawing it is all on the flat. Working with a solid material introduces a number of mental images and conceptions which otherwise a child would not acquire.

4358. But as regards neatness and accuracy, drawing would be as good a subject of instruction?—Not as good. I don't think drawing affords the same exercise in accuracy as woodwork. It is very much easier to erase a mistake in drawing than it is in a piece of wood if you have once sawn it.

4359. Do you think that teachers of manual work ought to begin teaching before they have gone through a course of training?—No, I think not.

4360. And that should last two sessions?—Two sessions.

4361. If we were introducing it into a country we should have to wait for two years before it could begin unless we imported teachers from another country?—You may import teachers to start with.

4362. Chairman.—And in the meantime you could begin with the lower standards in the preliminary grades?—Yes.

4363. I forget whether you have answered this—do you prefer ordinary school teachers, as instructors of manual work, to artizans?—As I say, the experiment has not been thoroughly tried, but it would seem that teachers might be more easily obtained from among elementary teachers than from artizans.

4364. There is just one other question I should wish to ask you. In your interesting letter to the Duke of Devonshire you make two or three incidental references to the primary schools in Germany, would you kindly explain the precise point you had in view? You say that "in Germany the instruction in the primary school exercises a deep influence on the formation of habits and in the training of character," and again, "the German schoolboy acquires habits of accuracy, and learns the significance of attention to detail, and the importance of discipline and obedience," and "the system is more formative of sound habits of thought." In what respect does the German school system generally differ from ours?—It is mainly through the teachers being, on the whole, better trained and capable of giving more sound and thorough instruction.

4365. It is not at all that there is more manual instruction?—It is the more thorough teaching which they receive.

4366. Mr. Redington.—Is there any manual instruction in primary schools in Germany?—In the north of Germany there is very little.

4367. Chairman.—In Bavaria?—In some parts they have manual instruction. Drawing is generally taught. Manual instruction is not so much taught.

4368. Mr. Struthers.—It is no part of the Government programme?—Not in all schools.

Hon. E. Lyulph Stanley, Member of the School Board for London, examined.

Hon. E. Lyulph Stanley.

4369. Chairman.—You have had a great deal of experience in connection with these subjects that we are inquiring into?—Experience in taking an interest in the discussion, but no special skill or knowledge.

4370. You have been a member of the London School Board for a great many years?—I have been a member of the London School Board, with the exception of three years, since 1876.

4371. And I see that you are a member of many of the principal committees, and that you attend them all very regularly?—Yes. I have had a large experience of the work of the Board, and generally I have taken a great interest in this question outside of London.

4372. You prefer, I understand, to leave the explanation of the details of the working in the hands of Mr. Barter?—I think he will explain best the educational points of the method and course of instruction.

4373. Kindly give us your view generally about these branches of educational work in the primary schools?—Speaking, first of all, for London or large towns where it can be well organized, I think it is of great importance that the whole scope of the instruction should be educational—that is to say, that the wood work should be the means of developing the intelligence and the faculties and the skill of the boys, and not an initiation to technical training. That is to say, it should rather be treated as a development of kindergarten than as the first stage of the technical school; secondly, I think it is of great importance that, subject to whatever Government department regulates the thing and aids it, if it does aid it by grants, that as much liberty as possible should be left to the localities to frame and submit schemes. I think it is very undesirable that any one absolutely uniform system should be imposed from a centre. The whole of this introduction of manual instruction is in its infancy, and I think we must expect that there must be the completion and the perfection of any system only by the working of many minds—working freely. But there is great danger if it is to be aided and there is to be a system of inspection—there is great danger lest the inspector should impose his own views on the district and substitute too much examination for inspection. I think the language of the circular which the Science and Art Department issued in 1893 was excellent, where they said that their observations were intended rather as suggestions than instructions, and that the scope should be educational.

4374. Under the Education Department, also, I think a good deal of latitude is allowed in England, yet not so much perhaps as you would consider desirable?—Mr. Barter will give you better evidence of that, for he makes a point of attending, as much as possible, the inspection, but my impression is, we have very little to complain of in London, there may be an inspector here or there who does not quite fall in, but as a rule the inspectors do inspect, and they don't impose a set of joints or a set of exercises which have to be done to satisfy them, but they see the teaching and see how the teachers teach. But all that is in the region of sufferance, and if there came a new inspector he might not be so accommodating, and there ought to be some official guarantees, some declarations recognizing that the first responsibility for organizing the teaching should be in the local authority. And the business of the department is to see rather that the instruction is *bona fide* and thorough, than that it follows on official lines.

4375. Do your observations refer only to manual training, or do they include preliminary occupations such as paper folding and cardboard work for instance, and also elementary science?—I should say that fortunately cardboard is not the subject of a grant, and therefore we have a free hand; the moment you get a grant you get conditions attached to that grant.

4376. In this year's Code I see a number of alternative courses are allowed in the section "Object Lessons." The various courses under this head are lettered from A to H; these were suggested, I understand, locally: is there not an article in the code that the teacher or the local authority of the school may submit such alternative schemes to the inspector, and have them approved if considered suitable for education?—There are very wide powers in the code for submitting alternative schemes of instruction, but those come under the Whitehall code, those are class subjects, those object lessons are the initial stage of elementary science.

4377. In that department the system of local choice has free scope?—Yes, reasonably free, but it must be guided, you cannot allow any caprice in a local body of men to set up a particular scheme.

4378. But once a particular local alternative scheme is approved, it remains approved for all the schools?—A scheme put into the Code is available for any school, an alternative scheme submitted by the managers and approved by the inspector, is a scheme approved for the school that submits it.

4379. But after it is inserted in the Code it becomes available for use in the schools generally?—I did not think I was to go into the Code so much as into manual instruction, but there is a clause in the Code which says an inspector shall have power to veto a specific subject which is unsuitable to the locality, if they wanted to take up agriculture in the heart of the City of London he might refuse to approve of it.

4380. Then you don't allow a teacher to earn results fees by teaching agriculture in the heart of London, oddly enough, it would be allowed in Dublin?—The English and Irish system is quite different, we have nothing to do with results fees, the payment here is a payment to the manager, and the manager makes his bargain with the teacher.

4381. With us all the money paid out by the educational authority goes direct into the pocket of the teacher You consider the inspector should have some practical acquaintance with the work, at all events such an acquaintance that he will take an active interest in it?—I think it is important for all inspectors, especially with a new subject like this, that they should be sufficiently skilful to know what can be done with tools, and what are good tools and bad tools.

4382. And I believe you are very fortunate in that respect in London?—I don't know whether they know—all I will say is we have found no difficulty with the bulk of our inspectors in working our scheme.

4383. You do not consider that your London scheme would be directly applicable to Ireland?—No; you must bear in mind that, except in a very few large towns, the bulk of your instruction is rural and your schools are small.

4384. And with only one teacher?—Yes, and that brings you face to face with almost insuperable difficulties in introducing manual instruction in village schools.

4385. You are speaking of manual instruction in the sense of working in metal or woodwork, but your observations do not apply to the preliminary training?—No matter; I say that I see immense difficulties in small village schools in introducing any subject of instruction which requires constant attention to a small class, on account of taking the teacher off the general work of the school.

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4386 When a teacher is teaching grammar, is he not taken off from the general work of the school?—It is a wonderful thing the way the rural teachers do get round from class to class, they are like men in a circus riding four horses, they set a class of children at arithmetic, then rush off and put a composition on the black-board, and then rush at something else; it is all in snippets, but if you have a manual class you must have it in another room, on account of the noise and hammering.

4387. Then you consider there ought to be a larger supply of teachers in these rural schools?—That is going quite outside this limited question, there you are face to face with the question of means.

4388. Supposing the means were forthcoming, the desirability of introducing manual instruction into a school would be a special reason for having a larger staff?—I am altogether in favour of a liberal staff, but I should not like to answer that question absolutely, it brings in an immense number of considerations, for instance, if I had a given amount of money to spend on a school staff, I might seriously ask myself whether I would rather have one teacher of thoroughly good qualifications and well paid, or two cheap teachers.

4389. Do you consider that the system of payment by results would be applicable to this branch of education?—I think the grant that the Science and Art Department makes of so many pence per attendance mounts up to a substantial grant compared with other grants; it is a definite payment if a class is fairly organised with a certain percentage extra if the inspector reports the work is excellent. But the great bulk of the grant is a sum for the satisfaction of the minimum, and it would not make a vital difference if you knocked off that 20 per cent, or split the difference and put it 10 per cent. for all, as long as the inspector had the power to say "this workshop is not properly equipped, the teaching is not proper, the tools are not *bona fide*, and therefore I disfranchise the place altogether." I don't think the margin for results is an important element, it is payment for a particular instruction.

4390. But do you think there is anything to be objected to in having a margin of extra payment for excellent work?—I think in London it has its value whether money is attached to it or not as a recognition of merit. I think it makes a difference to us in London, not the 20 per cent., but if with a particular teacher of a class the inspector coming round returns the work of nearly every section going to that class as excellent, it indicates to us that that man is a good teacher. If he is only assessed at the average grant it marks that he is a less efficient teacher. But we have 130 of these teachers in London; a large organization means promotion and means inspection; you come to quite different conditions if you want to set up a scheme in isolated localities.

4391. We have a great many localities in Ireland that are not isolated, in towns and in the neighbourhood of towns. I suppose the London system would work fairly well in the larger towns?—In three towns, Dublin, Belfast, and Cork.

4392. Do you think the London system would work fairly well in those three places?—You have not at present got any public organization responsible for education in any town in Ireland.

4393. We have heard that the organization that is responsible in London, taking it as a whole at all events, is not very satisfactory in its working, from the educational point of view?—You mean the School Board?

4394. The statement, of course, referred only to the Board as a whole?—I heard a statement made to you, I don't know whether you wish me to go into this controversial question.

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4395. Monsignor Molloy.—In Ireland there is no system of promotion of efficient teachers: each teacher is appointed by the manager, and therefore a teacher gains nothing, as a rule, unless what he is paid in the form of income?—In Ireland you have to grapple with your own educational difficulties.

Judge Shaw.—An efficient teacher gets a larger school.

4396. Chairman.—You consider that elementary science is a subject that ought to be introduced and that could usefully be introduced into the schools?—I think it is most important, and especially if taught practically.

4397. By practical teaching you mean having the experiments worked out by the children themselves? —I understand that you had Mr. Heller here.

4398. And Professor Armstrong also?—I think you have had practical evidence then. I would say that I believe the system introduced amongst us by Mr. Gordon, and carried on by Mr. Heller, is to my mind the proper way of teaching science in the lower classes.

4399. Mr. Struthers.—In the higher classes?—No, it would get on afterwards. I think the younger children should be taught to be familiar with the concrete. Here is Mr. Weedon's book.

4400. On the same lines as Mr. Gordon's?—Only that Mr. Weedon is doing it in the secondary schools.

4401. Mr. Redington.—Have you learned from the reports of the inspectors that the introduction of manual training has had any effect on the intelligence of the children, and their power of getting on in other branches of education?—Mr. Barter, who is our organizer, is in a better position to form an opinion as to how it reacts on the work of the school.

4402. Have you formed any opinion from conversations with managers of schools?—Rather from conversations with head teachers I should say it is a valuable instruction and useful, and develops intelligence and interests the boys. I am glad it has been introduced, and glad it has been made universal.

4403 Do you think its superiority to the study of drawing is sufficiently great to justify its introduction in addition to drawing?—I don't think it superior to drawing. I think it is most important that drawing should be an essential subject of instruction in every school. But I think that this, coupled with drawing, is a very valuable additional instrument of education; drawing must come first.

4404. Have you had much experience of rural schools?—Only by visiting them and talking with people who manage them, and trying to realise their difficulties.

4405. Has manual instruction been introduced into many of them?—No, I should think it would be extremely difficult unless you had some enthusiast with plenty of money to introduce it.

4406. Drawing is compulsory in all schools?—Yes.

4407. Professor FitzGerald.—Do you find drawing has been satisfactorily introduced into the rural schools?—I think it is very remarkable the way in which it has been introduced almost universally in spite of difficulties, and many of the teachers not having qualified. If you want to know whether it has been satisfactorily introduced you should ask the Inspector of South Kensington. If you were to judge by their assessments you would say it had been introduced successfully, because they have marked very many schools "good," very few "fair," and in hardly any is the grant withdrawn, but I should think they have been showing some indulgence towards a new subject.

4408. Mr. Redington.—Have you calculated at all, the cost per child, of the introduction of this manual instruction?—The School Board will be glad to send you any figures. We appoint instructors and assistants, more than half our teachers are instructors. The instructor begins at £100, and with proper qualifications rises by £5 a year to £155. The assistant begins at £80, and rises by £5 a year to £100. The assistant, if competent, is eligible for promotion into the class of instructor, and the instructor or assistant is only answerable for the instruction of twenty boys, that means that throughout the week he can have 200 boys passing through his hands. In addition to that there is the cost of putting up buildings and the cost of the wood, the latter comes to about 8*d.* or 1*s.* per boy for the year. The reason why we fixed that salary was this, it bears on the question of whether a teacher should be an artizan or a teacher, when we started we believed that of the two, the teacher that was skilled in class management and discipline would be more valuable with a moderate knowledge of the use of tools, than an artizan with a thorough knowledge of the use of tools and the necessity of thoroughly acquiring tact and skill in class management, therefore we fixed the scale of salary for our instructors on a level with the scale for assistants, so as not to discourage the assistants from passing into this special subject. As a matter of fact we have found our abler assistants have not cared to pass, because although there was less worry in the work they were shut out from promotion, when a man shunted himself into a school for manual instruction he would not be in the line for a head mastership. On the other hand the scale has been so liberal that it has got the very pick of the artizan class, and I think Mr. Barter will tell you that some of his most promising teachers are mechanics; it takes them a year or a year and a half to pick up school discipline, but you will find the greater brain power of the abler men will in the long run win as against the mere training of the ordinary man.

4409. Can you tell me the grant per head from the Science and Art Department?—I think 7*s.* or 8*s.* a piece

4410. If 200 pupils were taught in a week, that would come to £70, so it would not cover the cost of the teacher's salary?—No, to say nothing of the repairs, and warming and cleaning and the wood.

4411. Monsignor Molloy.—In the School Board system you have seven standards?—The English code has seven standards, and in a few schools children stop on for what we call the ex-seventh standard.

4412. Could you give us any approximate idea of the number of children in the sixth, seventh, and ex-seventh standard every year?—On the 25th March we take up the attendance of all the classes. If a child has reached the age of thirteen, and has passed the fourth standard, or made a certain number of attendances he is entitled to claim exemption from school attendances.

4413. The particular point I wanted to get was this: of 100 children who enter the school how many come to the sixth, seventh, and ex-seventh standard? —It is on page 74. In November, 1895, there were 19,700 in the sixth, 6,800 in seventh, and 1,600 in ex-seventh, making altogether about 26,000.

4414. Perhaps I am not far out when I say that the number that reach the sixth standard and higher is less than 10 per cent. of the number of pupils who enter the school?—It would not be very far off.

4415. Then in fact these standards represent advanced classes for a very limited proportion of the pupils, and they are not classes attended by the bulk of the pupils?—They represent the unfortunate fact that in the ordinary schools, children by irregular attendance or migration from school to school, don't get on into the upper classes of the school, I mean a higher standard of learning than in the other classes.

4416. These standards are not primary education, in the sense in which primary education is said to be compulsory?—Yes, they are primary schools, it is simply the fact that in the primary school owing to unfortunate conditions of civilization an inadequate number of children stop to get the full benefit of the course of primary education.

4417. But practically this is an advanced course of instruction, attended only by 10 per cent. of the school-going children?—I should not put it that way.

4418. Is that true?—Well, it is not.

4419. In the first place it is an advanced course of instruction, in the second place it is true that it is attended only by 10 per cent. of school-going children?—Every class is an advance on the class before it.

4421. Professor Fitzgerald.—Don't the children in the fifth standard attend this woodwork?—Yes.

4422. There are 27,000 in the fifth standard, as much as there are in the sixth, seventh, and ex-seventh put together?—Yes.

4423. Monsignor Molloy.—I was not speaking of woodwork but of the course given in the sixth, seventh, and ex-seventh standards, and I bring out the point that these standards are attended by less than 10 per cent. of school-going children?—

4424. Professor Fitzgerald.—I want to find out what percentage of children in the school are taught woodwork, are not 20 per cent. of the children actually taught this manual instruction?—I may say we sent in some boys in the fourth standard.

4425. And there are 42,000 children in the fourth standard, therefore nearly 30 per cent. of the children are actually under instruction in manual instruction?—No, are eligible for instruction.

4426. Chairman.—Very few of the 4th standard I suppose?—We are still trying to overtake the needs for manual instruction, and we have not got enough centres to accommodate all the children that are eligible, by degrees as we get the centres built the children will come in.

4427. Professor Fitzgerald.—Your ambition is that you should have at least thirty per cent. of the children in a school subject to manual instruction?—I cannot say what percentage, our idea is that a boy by the time he is strong enough and able to profit by this instruction should have it, and if we had enough accommodation we should send children whether in the 4th standard or higher, but the Government does not give any grant for the 4th standard, therefore we give them education free.

4428. Your organizers are not appointed by the Education Department?—No, by the School Board.

4429. That is, that the whole of this education has been organized locally?—By the School Board.

4430. It has not been imposed on you by an outside authority?—No, it is purely voluntary.

4431. You think it is desirable the locality should have that amount of liberty?—Again, if you are talking of England, yes; but if you are talking of Ireland you have a different system.

4432. You mentioned that from £100 to £155 a year enabled you to get the services of the best mechanics?—I believe so.

4433. Is £3 a week very large wages for a good artizan carpenter in London?—Some very first-rate hands will earn more at piecework and overtime, but then there are advantages and attractions in our service which compensate for that; there are substantial holidays and the hours of work are much easier, and I suppose they think it is much more distinguished to be engaged as teachers.

4434. As a matter of fact you found it was quite capable of attracting their services?—I think I may say we are satisfied with the applicants who come forward.

4435. Mr. Molloy.—May I ask how many schools there are under the London School Board?—Between 400 and 500 schools with about 500,000 places, and rather more than 500,000 children on the roll.

4436. Is manual instruction carried out in all or in the majority of these schools?—The intention is to carry it out for the older children in all schools, but owing to the delay in furnishing the buildings it is not yet carried out, this (*produced*) is a map of the London School Board district showing the schools and manual schools.

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4437. I take it the feeling in the London School Board is in favour of this manual instruction?—Yes, there is no dissent.

4438. Has that favourable opinion been indicated to the Training College authorities under the Committee of Council, so that manual instruction might be introduced as a part of the curriculum of the teacher?—No, I think the Training Colleges know what is going on. I may say that in two Training Colleges at least there is manual instruction. In the Wesleyan Training College at Westminster they have for some years given manual instruction, and at the Borough Road they have fitted up a workshop and are giving manual instruction; but my impression is that the object of this manual instruction is rather to put it within the reach of the teachers to be handy and enable them to construct apparatus to illustrate their lessons than to make them teachers of manual training in classes.

4439. I don't know whether you are familiar with the working of village schools?—Not in the same way as in London, although I have visited village schools.

4440. Have you thought of any subject that would be a suitable substitute for manual instruction in the village schools?—I think you have got to do a great deal to raise the village school before you come to these things which I would call the luxury of elementary education. A subject which in itself is less educational will become more educational if taught by a person who is able to teach it. If you put an unqualified man to teach this subject it will be a failure.

4441. But if these village teachers had been trained in the manual instruction in the training colleges, would they not then have that facility for introducing the subject?—They could not do it in school hours. If a teacher has to teach a class in manual training he must do it in a separate room and leave thirty children or so unattended to.

4442. Does the London School Board object to admit pupils from the voluntary schools to their manual training centres?—The School Board for London would be perfectly willing both for cookery and manual instruction, to admit pupils from the voluntary schools to their classes, the stipulation they make is that the voluntary managers shall pay for the complete course just what the Government grant would be, 4*s*. for the cookery, and 6*s*. or 7*s*. for manual instruction, but of course we give a preference to our own schools, and we have not spare places yet to accommodate the voluntary schools.

4443. Captain Shaw.—What subject has been displaced for this manual training?—No subject has been displaced, a little time has been filched from other subjects. The rule of the Science and Art Department is that if a grant is given for manual instruction it must not be, at the expense of the twenty hours minimum time for secular instruction, a week under the code. As the School Board give four and a half hours a day to secular instruction, we are able by sending the scholars to a centre for half a day a week to get twenty hours during the week. We arrange that the schools which go to the manual centre shall begin the secular instruction at a quarter to ten in the morning to get the little margin in and satisfy the requirements as to the twenty hours.

4444. Do you lay down how many class subjects are to be taught in each class?—It is not in print, but generally two class subjects are taught throughout the school; but they need not be the same.

4445. Are the class subjects taught throughout the standards?—Oh, yes.

4446. From your experience do you think it is necessary for instance—grammar is very often a class subject—to start grammar in the second standard; might the time be taken up more usefully in hand and eye training?—As a matter of fact the reason why grammar is so very generally taught is that for a long time the Education Department made it, under the title of English, a compulsory subject. Then the training colleges taught the students this,

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and I suppose they thought they knew it better than any other subject. But since English has been an optional subject the number of schools which dropped it has been increasing. We leave our teachers an absolutely free hand to teach within the limits of the Code any subjects they wish. We hold them responsible for the organization of the school, if a teacher has an inclination to teach English be is perfectly free, and if he wishes to teach elementary subjects he is free.

4447. Chairman.—Out of 856 senior departments, English was taught last year in 546?—Yes, but that is a diminished number.

4448. Captain Shaw.—Do you think the children educated in hand and eye and manual training in the first three standards will be able to cover as much of the class subjects in the last three as if they had taken them up in the beginning?—I could not answer that; it would depend very much on the way the thing is taught in the school.

4449. But it is a system which has been adopted under some Boards?—Of course now we have as a compulsory subject elementary science in the lower standards.

4450. But that is put on in addition to the class subjects?—That is a class subject.

4451. Professor Fitzgerald.—Elementary science is a compulsory subject?—Elementary science is a compulsory subject for the lower standards in all schools.

4452. Even in rural schools?—Yes; it is the first class subject.

4453. Captain Shaw.—Do you make every school take Course H?—Oh, no. We leave the teachers free in this; of course where Mr. Heller is the lecturer—he lectures rather for the upper classes—it is rather a physics course, and comes in more as a specific than a class subject.

4454. Then we understand they may take a choice in any of these science courses?—Yes.

4455. Chairman. — At pages 48 and 49 in the report, the figures show that elementary science is taught in 246 departments including boys', girls', and mixed departments, that is, 246 out of 856?—Two hundred and forty-six departments.

4456. That is an increasing number?—Next year they will all take elementary science.

4457. Captain Shaw.—I think you said that you were not paid for cardboard work?—No.

4458. Can you not take that as a useful occupation?—We do in some schools.

4459. Don't you get paid for that as a useful occupation?—No, we are allowed to do it—it is a secular subject.

4460. But you can take it as a class subject under the Code?—I don't think we ever do, it is taught in connection with the drawing. This (*produced*) is a report showing the extent to which these things are being taught to the teachers. Mr. Vaughan handed in this—In 1895–96, following the complete course in this subject, 599 teachers complete course in paper work; 1,224 complete course in colour work; 182 in cardboard work, and 440 in clay work. Altogether 8,473 teachers have completed courses satisfactorily under Mr. Vaughan since we started these classes for teachers.

4461. In the upper standards of the school you teach subjects of science in connection with the Science and Art Department?—We have done so to a slight extent in the seventh standard, but that is put an end to by the regulations of the Science and Art Department. No children now may be presented for any science grant under the Science and Art Department, which, at the same time, is marked for a grant at Whitehall under the elementary code. That shuts out all the seventh standard children.

4462. Did you find the education given was satisfactory?—In some schools it was, and in some schools it was not.

4463. Do you think there is any inherent fault in the regulations?—It depends on the subject. If you presented a class of boys in algebra I don't think you can satisfy the Department without having really substantially learned some algebra, and if you presented them in practical chemistry they must have learned something; but if you take a subject, such as physiology, I think it is extremely likely that will have been got up out of text-books, and will be by no means educational. At the same time I have known in some of our schools physiology taught very well and extremely educationally.

4464. Mr. Ball at a school yesterday said that the manual instruction given in the upper standards induced boys to stay at school who would otherwise not do so?—Certainly; teachers say it is very attractive in the upper classes, and has an influence in that direction, I would not say that it positively kept a particular boy, but it helps.

4465. Chairman.—You think it helps in securing regularity of attendance?—All these subjects are very popular. The evidence is that when girls are going to cookery or laundry, or boys going to manual instruction, they will make an effort to attend on that day when they might be more slack on other days.

4466. Mr. Molloy.—Is drawing a compulsory subject for girls?—It is a compulsory subject under the London School Board for instruction, but not for examination.

4467. Chairman.—How long has it been compulsory?—Ever since the School Board was started in 1871.

4468. Rev. Dr. Evans.—I think you told us that the Westminster Training College has introduced this manual instruction?—For some years.

4469. Do you know is it given there to any considerable extent?—I have seen their instruction. My belief is that all their students have manual instruction, or a large proportion.

4470. Do you think we could learn from them the way to introduce this manual instruction into our training colleges?—I have no doubt if you saw the principal he would give you very useful information.

4471. Has the literary instruction under the London School Board suffered by the introduction of this manual instruction?—I don't believe it has; I should rather say what evidence I have is the other way.

4472. Mr. Struthers. — As to the question of the mental effect of these three modes of training—the mental effect of the teaching of drawing, of manual work, and of elementary science, is all very much on the same lines?—I should not have thought so. I should have thought that the mental effect of teaching science was very different from the mental effect of teaching drawing or woodwork.

4473. In what respect do you think, putting manipulative skill aside?—The teaching of science will increase the power of observation and knowledge of the laws of nature, whereas drawing and woodwork mainly teach manual dexterity and accuracy of eye and correctness of performance.

4474. Don't they teach correctness of observation in the same way as the experimental Course H?—I think the advantage of what you call Course H is incidentally that it exercises the pupil in accuracy, but the advantage of it is that when the children are young it makes them thoroughly grasp scientific facts by concrete observation — the object is that they should grasp scientific facts.

4475. I thought the special point was the training in accuracy of measurement?—Yes, but with a view to make it the basis of scientific teaching. Mr. Heller probably can give a better exposition of his own point of view.

4476. So these subjects being different in their mental effect you would have them all taught abreast in the elementary school?—I don't say so. I think in our Board schools we are quite able to teach drawing and experimental science, and when the boys are old enough the use of tools, but I don't say I should do it in every school, only in our large town schools where there are means at the disposal of managers.

4477. You don't think the same course would be possible in rural schools; I gather you did not favour the introduction of manual work into the rural schools with one teacher?—Not by that teacher. It is entirely a question of ways and means. It is very expensive. If a country is so keen for education that they will provide money you can do anything.

4478. CHAIRMAN.—You are speaking now of the higher range of manual training, working in wood or metal, not of the hand and eye training, as we have come to call it, that which deals with the preliminary occupations, such as cardboard work?—No; I think you may introduce that much cheaper, there is much less expensive apparatus, and the cardboard work does not make a noise.

4479. Mr. STRUTHERS.—The teacher in a large town school is always dealing with a large class of seventy or eighty pupils; the teacher in a rural school deals at the most with groups of twelve, fifteen, and so on, so that even in the ordinary subjects he works with his pupils individually more, and is able to bring his training to bear on them more individually, and one of the points of this manual instruction is that it promotes individuality on the part of the pupil. Is not this individuality obtained in the ordinary school course in rural districts?—I don't know that it is. I don't know that the fact that a teacher in a village school goes from class to class and takes little groups of fifteen necessarily promotes individuality. I think there is a danger of making it mere mechanical.

4480. I have found it the other way in rural schools?—Well, I cannot give evidence on that, I don't know that.

4481. Is there some form of manual work taught in standards two, three, and four in the London Board schools?—Yes, under what the Department calls "varied occupations."

4482. Is that obligatory on all the Board schools?—It was obligatory by the Code in all public elementary schools—in one and two, certainly.

4483. I thought that rule was withdrawn?—On the contrary; Appendix X. to the "Instructions to Inspectors" for 1897 gives full details as to the character of the varied occupations in senior departments.

4484. Is the programme in drawing for girls on the same lines as the drawing for boys?—As it is not a subject necessarily taken for examination, the Government scheme does not apply, and it is left very much to the discretion of the head masters how they should teach it.

4485. There is no other scheme substituted?—No; they have to give about an hour a week to it, and they are left to their own discretion, and there is not an inspection by our Board Inspector.

4486. Mr. HARRINGTON.—With regard to the peripatetic teaching of manual training in some of the provincial districts, has it been carried out to any extent or has it been tried at all—that is working from say a centre?—Yes. I believe you are going to Liverpool. I think Miss Calder will tell you how that has been worked by their Northern Union for cookery,—that they send teachers to villages. The managers of country schools club together, and a teacher will go about and take ten schools.

4487. And for manual work?—I don't know that that has been done, but of course it could be obviously done in the same way. The only difficulty is the difficulty of the place—how you can find in a village a room to be used as a workshop. If there is a squire or a clergyman who has a barn or a room and is enthusiastic, he will put an empty room at your disposal and put benches in.

4488. I suppose I am right in assuming that this manual training is not in existence in a great many large towns in England?—Oh, yes; you will see from the Science and Art Department returns the number of schools that earned grants in it last year.

4489. Are there objections to the introduction of this manual training; of course there are a great many educationalists who are opposed to this training?—Whenever a new subject is introduced you find a certain amount of objection from the teacher lest time should be taken from them that they want for the subjects on which their reputation depends. Take cookery; in the girls' schools we have now got it very largely extended. When we first introduced it there was a good deal of hostility for two reasons, partly the loss of time and partly the dislocation of the classes. A mistress has a class of forty-five or fifty; you send half of that one day to the cookery teacher and half another day, and the class teacher has to repeat her lesson twice over. It is a great loss not only of time but in the duplication of lessons. But nearly all our mistresses now I think are delighted with the cookery, and would not give it up for anything though it does dislocate her class; they say it is so valuable for the girls.

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4490. CHAIRMAN.—Kindly look at page 65; it is there stated that the number of centres is 104, of which 49 are double centres; the 104 centres would each accommodate 200 pupils a week, and 49 of them will each accommodate 200 more?—If you wish it I have later figures. There were 114 centres open at Christmas; of these 56 were double centres, which would therefore take 400, and the remaining 58 would take 200 each.

4491. Suppose we take it first upon the figures we have in the report. There are 104 centres, of which 49 are double centres, this is equivalent to 153 centres, accommodating 200 each?—Yes.

4492. That is, 30,600 pupils are accommodated during the year?—Yes.

4493. The average number on the rolls of the Board schools is 511,566, so that only 6 per cent. of the pupils, according to these figures, get the benefit of manual instruction?—You must consider that only one-half of these are boys.

4494. Taking that into account, the outside figure would be 12 per cent., and we should find that only 12 per cent. of the boys are getting the benefit of this manual instruction?—Yes. If you have 260,000 boys of all ages from three up to fourteen, if they stopped on you might expect that one-fifth would be of an age to profit by this instruction, twenty per cent.

4495. But as a matter of fact only about 12 per cent. of the boys are getting the benefit of the instruction?—I daresay that is so.

4496. Judge SHAW.—Boys that are in junior classes this year will be in the advanced classes next year?—Yes, they have three years' classes.

4497. Mr. STRUTHERS.—It may be put that only 12 per cent. of the children reach the proper age for manual instruction?—I would rather not answer offhand without looking at the figures carefully.

4498. Judge SHAW.—But as I understand, the pupils of the junior classes who do not attend this manual instruction this year will next year or some other year be in a position to attend?—Yes, they will pass up to it.

4499. It is perfectly well known that the higher branches in all subjects show a very diminished number who take them?—Oh, yes, in every country, America and everywhere; if you draw a curve of the number when you get past eleven years it is a rapidly diminishing curve.

4500. The number of those who learn the differential calculus is a very small proportion of those who learn arithmetic?—I am not talking of that, but of the manual training. Might I say of the centres of manual instruction what I find is that though you have centres of twenty the teaching rapidly becomes individual teaching, which puts a great difficulty on the teacher. If you start with twenty boys to-day, and begin to do manual instruction for the first time, owing to the variety of abilities of the boys before they had been going three months, those boys would have divided themselves into four groups perhaps of different abilities.

London

March 24, 1897.

ELEVENTH PUBLIC SITTING—WEDNESDAY, MARCH 24, 1897,

AT 10 O'CLOCK, A.M.

At the Examination Hall, Victoria Embankment, London.

Present:—His Grace the Most Rev. **WILLIAM J. WALSH**, D.D., in the Chair; The Right Hon. C. T. **REDINGTON**, M.A.; His Honour Judge **SHAW**, Q.C.; The Right Rev. Monsignor **MOLLOY**, D.D., D.Sc.; Rev. **HENRY EVANS**, D.D.; Rev. **HAMILTON WILSON**, D.D.; Professor G. F. **FITZGERALD**, F.T.C.D.; **STANLEY HARRINGTON**, Esq., B.A.; W. R. J. **MOLLOY**, Esq.; Captain T. B. **SHAW**; and J. **STRUTHERS**, Esq., B.A.;

with J. D. **DALY**, Esq., M.A., Secretary.

Mr. J. R. Diggle, M.A.

Mr. J. R. **DIGGLE**, M.A., Member of the School Board for London, examined.

4501. **CHAIRMAN.**—I believe you are a member of the London School Board?—Yes.

4502. And a very active member of it. You are also a member of several important committees of the Board?—Yes.

4503. And amongst these you are a member of a sub-committee on certain special subjects of practical instruction, such as kindergarten, manual and science teaching, drawing, and music?—Yes.

4504. You are not a member of the sub-committee on cookery, laundry, and needlework?—Not on this Board.

4505. But you have some experience of the working of that committee?—For nine years I was chairman of the Board, and during that time I was ex-officio a member of every committee. Before that time, too, I was a member of the committee on what are now called domestic subjects, so that practically my experience ranges over eighteen years.

4506. By the domestic subjects you mean cookery, laundry work, and housewifery?—All those subjects which have gradually gathered round cookery, needlework in addition to those you have already mentioned.

4507. Special work for girls in schools?—Yes.

4508. You are aware in a general way of the terms of the Lord Lieutenant's warrant for our Commission?—I am.

4509. Will you kindly give us any information that you think may be of use to us on the different branches of our inquiry. Which shall we take first?—Manual training first.

4510. By manual training you mean working in such materials as wood and iron?—By manual training we really understand the subjects which are not denominated literary.

4511. Those that are not mere book work?—Not mere book work.

4512. In Birmingham we found a distinction made between hand and eye training and manual instruction. There they confine the term manual instruction to the working in materials such as wood and iron, beginning at fifth standard. They call the preliminary work in the earlier standards hand and eye training. Kindly say whatever may occur to you on these matters?—What is known in Birmingham as hand and eye training took its rise in London. I ought perhaps to say that not only am I connected with the School Board, but that ever since its inception I have been chairman of the Joint Committee on Manual Training, which is composed of representatives of the School Board, of the City and Guilds of London Institute, of the Drapers Company, and of the London County Council, and of certain other nominated members. It is the body which by experiment first showed the practicability of grafting on to the literary work of the day school all these manual employments which are the preparation for higher technical work; and perhaps I might be allowed to take some of these things in their chronological order which would be probably more helpful to the Commission than in any other way. It was in the year 1886 that the School Board and all managers of elementary schools in London found themselves in this difficulty, that they were not allowed to spend out of the school fund any moneys upon other subjects than those mentioned in the Education Code for the time being, and we in London under the School Board were surcharged by the Education Department for an experiment which we made in a very simple form of woodwork in connection with one of our schools. As a result, we addressed a letter to the Guilds of London asking them in the circumstances to place at our disposal money which we might use for experimental purposes. If the Commission desires I can hand in officially a copy of that letter which will give the plea put forward by the School Board at that time. As a consequence of that appeal the Council of the City and Guilds of London Institute placed at our disposal £500 a year; it has since been reduced to £250.

4513. That was in 1886?—In 1886, or thereabouts; 1887 it was. The Drapers Company placed at our disposal £1,000 a year, and they have continued that grant of £1,000 yearly from that day to this.

4514. Has the other grant been continued, the grant of £500 from the London Guilds?—I think in the smaller form of £250, help has been given by both bodies; the money so placed at the disposal of the Board has been expended under the direction of the Joint Committee of which I have been from the first chairman.

4515. What was the name of that committee?—The Joint Committee on Manual Training, composed of the bodies I have already mentioned. Then the School Board placed at our disposal certain unused rooms, three south of the river and three north of the river Thames.

4516. These rooms were in different parts of London where they served as centres?—Yes. We fitted these up with benches, and began a system of manual training in wood, and in 1890 this was added by the Education Department to the list of subjects which may be taught in an elementary school. From that time onwards it became possible for the School Board to spend out of their school fund money for teaching these subjects.

4517. Mr. **STRUTHERS**.—Did the Education Department give no grant?—They gave at that time no grant; they have given a grant since.

4518. The Education Department, not the Science and Art Department?—I beg your pardon, the Science and Art Department have been the conduit for the grant. It then became legal to teach these subjects, and afterwards we got a grant technically from the Science and Art Department.

4519. **CHAIRMAN.**—Allow me to ask, was that subject then recognised for all the standards, or only for the higher standards?—It was recognised as a subject which might be taught in any elementary school. I don't think at that time there was any restriction as to the standard, except so far as it was restricted by

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the term "specific subject." It fell under precisely the same category as specific subjects; that was the commencement of the manual training in wood.

4520. That was the commencement of this branch of school work in London, and practically it was the commencement of it in England?—It was the commencement in London, and practically it has spread all over the world. That Joint Committee has sent out teachers to almost every part of the world to teach the subject.

4521. Unfortunately, you have sent none to Ireland?—No. I hope this Commission will be the means of doing that. After having dealt with the boys from the point of view of adding something practical to their literary work, then we turned our attention to the girls.

4522. Allow me to ask you about the boys' side of the question—at this time was drawing a recognised subject?—Drawing was a recognised subject in all elementary schools.

4523. Was it compulsory—I am now speaking only of the boys?—I will put that in. I cannot say from memory. (Drawing was made compulsory for boys in schools for older scholars by the 1890 Code of the Education Department.)

4524. Captain SHAW.—It was not compulsory in 1890?—Then it became compulsory when manual training was permitted, and a grant made for it. After that of course the system grew, and if you desire to finish that subject, I will explain its position at this moment.

4525. CHAIRMAN.—We had better follow whatever arrangement you consider most convenient?—At this moment the School Board are providing places of instruction for boys in the upper standards in manual training in wood in connection with various groups of schools throughout London. The system adopted is what is known technically as the centre system. A building is provided, to which boys are drafted from the neighbouring schools in rotation, and receive their lessons in a centre as apart from the ordinary school and go back to the ordinary school for their ordinary instruction. I may say, in passing, that the centre system is the system we adopt for all this special work, such as cookery, laundry, housewifery, and so on.

4526. We have visited some of these centres. Can you tell us how many of them there are in all?—I will put in the number of centres which have already been opened. There are 117 centres opened.

4527. And of these over fifty were double centres?—Fifty-six were double centres.

4528. A centre accommodates 200 in the week?—A double centre accommodates forty in the day, a single centre accommodates twenty; you multiply that number by ten for the week.

4529. There are ten lessons given each week?—Yes; the number of our instructors is 118; the number of our assistant instructors is 56.

4530. You have 30,000 boys getting the benefit of this instruction at present in London?—That is so. Then, having done that for the boys, the Joint Committee began to consider similar plans for the girls, and so we established a laundry centre for the purpose of teaching girls to do all the various occupations that fall under that head—washing, starching, and getting up linen, and of course the cleansing of all utensils; and to understand the nature of everything which is used in the process of washing.

4531. To understand something, also, I suppose, of the nature of the materials used?—Yes.

4532. About what time was this system established?—In 1888; that is the year we began the manual training in wood. We established at that time four laundry centres. As a consequence of that experiment, the authorities of the Education Department came to see the work, and the subject was put into the Code in 1890.

4533. They did not begin by surcharging you on that occasion?—There was nothing to surcharge, because it was done by the Joint Committee out of the funds at their disposal, and the service the Joint Committee has rendered has been to show the practicability of these methods before asking the Government to empower other bodies having funds at their disposal to expend moneys upon them. Then the School Board began to establish laundry classes, and at this moment we have about 100 laundry classes.

4534. And you have over 5,000 girls under instruction?—4,500 is about the number. Then that experiment having also succeeded, the Joint Committee tried an experiment in housewifery in 1891. We tried this experiment on the Saturday mornings only; we fitted up rooms as they would be fitted up by the better class of artizans with bedroom furniture and sittingroom furniture, and all this was done in connection with a cookery and laundry centre, which was already established, and from the neighbouring schools girls voluntarily came on Saturday mornings to be instructed in housewifery.

4535. Throughout you had the fund that you have described to us, the fund of £1,500 a year subscribed by the Drapers Company and the Guilds of London, to draw on for the purpose of your experiment?—For all these purposes; the girls are taught to do everything in connection with the house. They go there and make the beds, they clean the rooms, they clean all the iron utensils about the room, dust the chairs, and are taught to set out the table for meals;—in fact everything which will have a tendency to improve the social habits of those families from which they come.

4536. It may interest you to know that a similar experiment has been tried in Ireland in a Convent school not far from Dublin, the school of the Loretto Sisterhood at Bray, but unfortunately there is no £1,500 a year to fall back upon: the nuns have to pay for it out of their own funds: you are better off in London?—In 1893 the subject of housewifery was put into the Code also as a result of a visit from educational authorities, and I may say that those housewifery centres have been visited by visitors from nearly all parts of the world. Now the School Board are establishing similar institutions in various parts of London, and they have at this moment under their consideration a plan for dealing with the whole of these practical subjects connected with girls' training under the one head of domestic economy, so as to make cookery, laundry work, housewifery work into a connected course, in order that the girls, if they stay at school until the age of fourteen or thereabouts, will have received a fairly complete training in all these special subjects of a girl's upbringing. Then there is a special sub-committee of the Board in charge of that department, the committee over which Mrs. Homan presides. Then we tried the experiment, in 1892, of metal work for boys. There was a metal work class which had been started in the Church school in Marylebone, under Canon Barker, and, in 1892, the Joint Committee practically took over the responsibility of this work. The boys are taken from the neighbouring schools just as they are in the case of woodwork, and they are taught various branches of metal work, as in the case of woodwork, only with the simple design of making them conversant with the use of tools, with the nature of the material to be worked upon, and the necessity of perfect exactitude in all the work. All the work they undertake is first drawn on the flat surface and afterwards made in the material.

4537. It is drawn by the boys themselves?—Drawn by the boys and afterwards made in the material, and of course both the drawing and the actual work must be exact in its measurements. The School Board have also a metal training class in the Tower Hamlets, and metal work also has now been recognised as a subject which may be taught in elementary schools.

4538. We visited the Thomas-street school?—That is the one under the School Board. I have thus indicated the work which has sprung out of the annual donation of £1,000 from the Drapers Company, and

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the other contribution from the City and Guilds Institute. At this moment the work is being carried on in the six centres, in woodwork, mainly for non-Board schools, because they have not the means at their disposal for establishing centres which the School Board have, and those who have given the money are anxious to see that the children of less favoured elementary schools shall have an equal opportunity with the more favoured.

4539. You speak now of voluntary schools?—Yes—shall have an equal opportunity of receiving this preparatory instruction to technical work; the whole aim we have had before us has been, not to teach a trade, but to teach the principles upon which real technical training may afterwards be carried out.

4540. And I suppose you consider that what the children learn in this special department would be of use even to those who do not go to trades, but become clerks, or pass into the various professions: you consider it useful even for those?—It is a part of training; all these habits of exactitude are useful, whatever occupation a child afterwards follows.

4541. As regards the standards for which these various branches are available, will you tell us, please, which standards they are available for, beginning with the lowest and going on to the highest?—I can tell you the principal standards.

4542. Monsignor Molloy.—The total number of pupils at present in the schools under the London School Board, are divided among the several standards?—Yes, taken from the roll, I think I can put it all in in tabular form. In March, 1896, there were on the rolls of the School Board schools of London 508,985 children, of those 152,240 were children under standard 1; 84,188 in standard 1; 70,830, standard 2; 64,057, standard 3; 55,056, standard 4; 41,470, standard 5; 25,899, standard 6; 11,521, standard 7; and 3,724, ex-standard 7.

4543. In a memorandum perhaps you could divide them into boys and girls?—Yes, I can divide them into boys and girls, except in the case of the infant children, but you may take it roughly that they are half and half; they are almost equal, you may take them as equal.

4544. Up to what stage do you count the infants?—Up to standard 1.

4545. Do you include standard 1?—Well, there are a certain number of standard 1 children taught in infant departments, but the infants proper are those below standard 1.

4546. Mr. Struthers.—This standard 1 includes standard 1 in the infants' department?—Yes.

4547. Monsignor Molloy.—Then is the statement that they are practically half girls and half boys equally true of the higher standards as of the lower standards?—May I give you the figures. I can give it in the higher standards; there is a slight difference there. What standards shall I give you?

4548. Begin at ex-7th and go back?—In standard ex-7 the number of boys are 1,877; of girls, 1,847. In standard 7 the difference is more marked, the number of boys is 6,010, the number of girls is 5,511; standard 6, 13,703 boys; 12,196 girls.

4549. That will do, thank you; perhaps you will send in the full statement in a memorandum that we may put upon the minutes?—Certainly.

4550. Chairman.—Well, now, coming back to the question that I put to you, to what extent are the children of the various standards getting this practical instruction, first take the under-standard children, these have the advantage of the kindergarten?—We take some children in standard 4, but mainly the children in standard 5 and upwards are receiving this manual instruction for boys, and practical instruction for girls.

4551. You speak of manual instruction in the sense of working in materials such as wood and iron?—Yes, for boys, and laundry work and so on for girls.

4552. But what about the children who are in the standards below the fifth?—You will find there are some few whose age is about 13 years, who are—about 2,000 of them—below standard 5; they are old for the standard in which they are technically placed in the schools, and so, in order that they may have this technical training before they leave school, they are taken into the centres before they reach standard 5.

4553. But that is exceptional?—Those are the exceptions.

4554. Then as to the ordinary children in standard 4 and as to the children in the lower standards, what benefit do they derive from this practical side of your school system?—They have the preliminary training from the infants up to that standard, which is known as kindergarten and hand and eye training.

4555. How far do you carry on the kindergarten training?—Throughout every infant school.

4556. And may that include children in the 1st and 2nd standards?—No, it may include children in the 1st standard, and very largely does include children in the 1st standard; there are 34,000 children out of a total of 84,000 in standard 1, who are in the infant schools.

4557. Here in London all the infant children have kindergarten?—All the infant children are taught upon the kindergarten methods, but there are 34,000 children of standard 1 in infant schools who are also taught on kindergarten principles.

4558. Then there is no kindergarten system in standard 2?—The moment the child is promoted to the senior department, it begins the work of the senior department, which falls at present into a different category.

4559. Does the senior department begin with standard 2?—No, the senior department begins in the case of 50,000 children with standard 1.

4560. Monsignor Molloy.—It is where they cease to be infants?—Yes; but may I say that the division between the senior and infant departments, so far as standard 1 is concerned, is not a division founded upon principle but upon expediency. Standard 1 is kept in the infants' school because there is no room for the children in the upper department.. Where the upper departments are not full, there is no standard 1 in the infant school, and as the schools are graded, it follows that in certain neighbourhoods there is pressure for infants, and in other neighbourhoods there is pressure for older children. In some localities the children go to school young. In other localities they are kept at home until they are of a higher age, so that standard 1 becomes the flexible part of the school. It sometimes is in the infant department, and sometimes in the senior department.

4561. Chairman.—According as there is room in one department or the other?—According as the different schools vary in that respect. But whenever there is a standard 1 in the infant department that standard 1 is taught on the same method as the rest of the infant school. Whenever standard 1 is in the senior department, it is taught on the same method as the course of instruction throughout the senior departments.

4562. At any rate, all the children in the infant department are taught on kindergarten principles?—That is true.

4563. Now are any of the children in the senior departments taught on kindergarten principles?—That depends on what is understood by the words kindergarten principles. We have a special committee at this moment considering that very point. There is all the difference in the world, if I may venture to suggest, between a kindergarten principle and a kindergarten occupation. The principle of all kindergarten work is that the child should be taught to observe and to do the thing for himself. That principle of instruction in all good schools pervades the whole school.

4564. But that is not a distinctive principle of kindergarten work?—No, but it underlies what is technically known as kindergarten occupations.

4565. In other words, it underlies the practical side of education throughout the whole school, but my question regards only what is distinctive of kindergarten?—The kindergarten occupations cease.

4566. We come then to the senior department. Now, what provision have the children in the senior department for practical instruction—first, when does drawing commence?—Drawing is taught now in all stages.

4567. Having made a beginning of drawing in the kindergarten department, you carry it right through. There is no break?—No break.

4568. And in addition to drawing, what provision have you for all those matters that come under the head "hand and eye training" such as we have seen in Birmingham—card-board, paper-folding, wire-work, work in clay, and every thing of that kind?—These subjects are taught in 500 departments.

4569. I may add that we saw in Birmingham a singularly interesting branch of school work in which the children in the lower standards showed wonderful skill in placing little blocks of wood, bricks they call them, from diagrams on the black-board?—I don't know whether there is much working with little bricks in the senior departments, but there is certainly card-work and paper-work. Mr. Vaughan is our instructor in these subjects.

4570. At all events, this practical system of education is carried throughout your entire school system from beginning to end. Now about another point. There is a third body of which, I think, you are a member. When the London County Council found itself in possession of money for the purpose of technical education, higher technical education, strictly so-called, they asked the London School Board to appoint three members on a joint committee, and you were one of the three?—I am one of the three.

4571. Mr. Lyulph Stanley and General Moberly are the two others?—Yes.

4572. What is that body called?—The Technical Board. It cannot spend any money upon anything which may be legally done in an elementary school. It aids advanced night schools, polytechnics, gives scholarships, and provides classes for children who do not go to an elementary school, and cannot be compelled to go to an elementary school.

4573. I suppose the Technical Board deals with those branches that are more connected with particular trades?—Of course; special work, such as classes for, shall I say, book-binding—really technical work of that kind—cabinet-making, and so on. They are distinctively trade classes. We have a rule confining those who are taught to persons occupied in the trade.

4574. Will you kindly give us your idea of the distinction between work in a technical school and the practical work that is done in an elementary school: it is a very important distinction for us?—The work in a technical school is distinctly a preparation for a trade.

4575. For a particular trade?—For a particular trade. The one is to make a workman and the other to make a man.

4576. That is, the work of the technical school goes to make?—The workman. The elementary school goes to build up the man as apart from any particular trade to which he may afterwards devote himself.

4577. Now, is there any other point that you think it would be of help to us to mention in connection with this practical side of the work of the elementary school?—I think there is this point which is worth consideration. This use of the hand, especially so far as a boy is concerned, has a very considerable tendency to brighten the whole run of school work. A dull boy when he gets behind his companions in literary work is very apt to become duller and duller, because he cannot use his brain so nimbly as his companions. But very frequently the boy who is dull at his books is quick when he is set to make something. The change of occupation renders school more attractive to him.

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4578. And instead of being disheartened, when he finds there is something he can do well, he keeps on?—Yes. And the effect of this work is to keep children longer at school. If I may I will give you the figures for the last three years, taking all the children of standard five and upwards.

4579. These are the standards to which the manual instruction is mainly applicable?—Yes: in 1894 in standard five there were 37,263; in 1895, 39,226; in 1896, 41,470. In standard six in 1894 there were 22,363; in 1895, 23,673, and in 1896, 25,899. In standard seven, there were in 1894, 8,285; in 1895, 10,060; and in 1896, 11,521. In standard ex-seven in 1894, 2,544; in 1895, 2,778, and in 1896, 3,724.

4580. So that in each of these three standards there is a decided increase?—It is continuous, and I think I ought to observe on that, that it is continuous in a larger proportion relatively to the increase of the children in the periods I have taken.

4581. It is not accompanied by any corresponding falling off in the attendance at the voluntary schools?—No, I don't think so.

4582. It is the result of the children who are at school, continuing on?—Continuing on. But there is an increase in the school population, and the increase of which I have spoken is an increase which is in advance of the ordinary increase which you would naturally expect.

4583. How do you account for the progressive lowering of the number in attendance in each standard?—Because the children leave school.

4584. And these are children who have reached the upper limit of age for compulsion without having gone through the sixth standard?—They have gone through the sixth standard in advance of their age—very large numbers.

4585. Monsignor Molloy.—Might I just give you one figure illustrating that. In 1896 you had in standard one 152,000 children, in standard four you had 55,000. That represents a falling off very nearly of two-thirds of the whole?—That is so.

4586. That is due to some extent to mortality?—To a very large extent.

4587. Mr. Struthers.—There is one important point. The standards under Class I. perhaps comprise two years of infants?—Yes.

4588. Chairman.—Taking standards one and five, standard one is 84,000, and standard five is 41,000, practically half?—Then you are dealing with ages from seven to eleven, and you must take into account the mortality in those ages; that very largely accounts for this loss. There is a certain amount of interchange from school to school, that is to say a boy may stay in an elementary school to a certain age, and then go off to some other school outside our boundaries.

4589. Monsignor Molloy.—That would be a small proportion?—But it is all in the direction of loss.

4590. Up to standard four at least education is compulsory?—It is compulsory under two heads. We have an age qualification as well as a standard qualification.

4591. Is there any excuse that will exempt a child from going to standard four?—Not up to standard four; they must have passed standard four.

4592. Then there is no excuse that will exempt a child from going to standard four?—When he is over fourteen years of age he ceases to be under compulsion.

4593. Then he may leave at any standard if he is over fourteen?—Yes, fourteen is the age limit.

4594. Chairman.—And to a large extent thirteen is the age limit?—Thirteen coupled with the standard qualification.

4595. But fourteen years of age is a limit beyond which your system of compulsory attendance cannot go?—Yes.

4596. Monsignor Molloy.—But a child of thirteen cannot leave school unless he has passed standard

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four?—A child between eleven and thirteen is not required to attend school if he is beneficially and necessarily employed and has received from one of Her Majesty's inspectors a certificate that he has passed the fourth standard.

4597. Therefore standard four is compulsory for all children up to thirteen years?—Yes, all children who are not over thirteen years of age.

4598. You may have children of thirteen or fourteen in standard one or standard two—dull children?—Yes.

4599. CHAIRMAN.—Connected with that point may I ask you one question about a figure in your report? On page 16 of the report of last year you say "number of Elementary School Children [3-13] according to Schedules of the Visitors, 832,966." Then there is a foot note, "In addition there were on the visitors' schedules 54,481 over the age of thirteen." May I take it that these were children who fell within the compulsory law?—No. The visitor puts upon his schedule every child attending school. He schedules every child attending school, and every child between three and thirteen whether he attends school or not.

4600. But as to the children between thirteen and fourteen, those children who ought to attend school but are not attending it, does he schedule those?—They are assumed to be on the school roll. The school roll is the net which it is assumed catches those children, because no employer can employ a child unless he has passed the fourth standard if he be under thirteen.

4601. Take the case of a child who is over thirteen and has gone through all the stages so as to be exempt from the compulsory law, would that child be scheduled by the visitor?—Not unless he was attending school. I think you found when you went to Thomas-street, a considerable number of girls there over fifteen. They will all be numbered in that 54,000

4602. You spend a large amount of money on the enforcement of the compulsory attendance law. I think it was £46,000 you spent last year in that department?—We spent it on the department, but not all on compulsion.

4603. But, one way or another, this sum is spent on the department that exists for securing the enforcement of the compulsory laws?—Yes. But it is also spent on the scheduling from house to house of these children.

4604. Is not that also part of the machinery?—It is not necessary to have a census every year for that purpose. The London Board is the only board that does take a census every year of its child population.

4605. At all events, you spend that amount of money, £46,000 a year, to secure the attendance of children in the schools of London for the year?—We spend it on that department.

4606. Mr. HARRINGTON.—Before you introduced this manual training, were any steps taken to ascertain the opinions of the teachers themselves on this question?—No steps were taken to ascertain the opinions of teachers as a body, but those of us who began knew what teachers had said in various conferences.

4607. I presume the teachers in England have some kind of organisation?—Yes.

4608. And do they take any steps to inform the authorities what their views on the subject were?—I don't think so.

4609. They didn't protest against the introduction of this manual work?—No.

4610. Suppose they did protest. Would their views be taken into account by a body like the School Board?—We take everybody's views into account.

4611. Monsignor MOLLOY.—But then you form your own independent judgment afterwards?—So far as we are independent.

4612. Judge SHAW.—It is a matter of how much weight you give to the opinion?—I may say on that point that generally the teachers have naturally all along from their point of view objected to an overcrowded curriculum, and in doing this work we have been always anxious to make the curriculum as elastic as possible. I should very much object to a cast-iron rule which enforced the same thing upon every school, irrespective of its circumstances and conditions. That cannot be done with any really effective result.

4613. Mr. HARRINGTON.—I suppose there are a certain class of people who are opposed to this manual training?—There were. The Trades Unions were a little jealous of it at first, until they saw that what we were doing was not teaching a trade, but creating an aptitude.

4614. I mean educationalists. Is there any other side to the question at all?—Except from those who, remembering the short time a child has there, think that the whole of school training ought to be literary.

4615 Then, their view has been over-ruled by your Board?—If there are persons who think we are now doing work which is destroying the literary character of our schools, yes. But I think they have found by the actual working out of this system that the one thing is not in antagonism to the other.

4616. Then any opposition that did exist?—Has died away.

4617. CHAIRMAN.—May I ask has any member of the School Board ever taken it into his head to do away with these practical branches, and to go back to the old system of mere book work?—No, all the proposals are in the other direction, not only in the School Board, but as representing public opinion outside.

4618. Mr. STRUTHERS.—You make your system more elastic by introducing new subjects?—That is, of course, one side of elasticity—giving a choice of subjects.

4619. You spoke of simplifying the work of the teacher; what you have done is to introduce new subjects; how does that simplify the work of the teacher?—Concurrently with that, there are certain subjects that were universally compulsory which are now optional.

4620. Such as——?—For instance, grammar and English subjects.

4621. Then, if there has been any practical relief to the teacher, some of these subjects have been omitted?—The same stress has not been laid on them, and I may observe that from the point of view of the teacher, all this practical work is a direct relief in the ordinary school, because he is not the teacher of these boys in those subjects. They are put under a special teacher, appointed for this purpose.

4622. You don't think it would be the same relief to a teacher in a country school, who had to do this kind of instruction himself?—I think change of occupation would be a relief to him.

4623. Then, you say you favour the centre system of instruction—on what ground?—Very largely on the ground of effective and economical work. Any one school to supply a centre throughout the year must be an exceptionally large school.

4624. Is there any standard of size of school you have?—We have schools of practically three grades, the school of 1,000 and below, the school of 1,000 to 1,200, and the school of 1,200 to 1,600.

4625. And the largest size of school would not be enough to keep one centre going?—It would depend upon where the school was. In the largest size of school in all probability you would find the centre filled, and any scraps of time would be filled up with drafts from other schools not so large.

4626. Is there not loss of time in children going to a centre from their own schools?—The child may start a little earlier for his school, but it is no waste of time. It is a good thing to take a London child a little away from his home; it makes him walk.

4627. Do they go in a body to the school?—No, individually.

4628. Judge SHAW.—Do teachers not object to the

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children being taken away from them every week?—In girls' schools there was that difficulty when they were subjected to annual examinations, and in some schools we have annual examinations by Her Majesty's Inspectors still. It was inconvenient to break up a class or standard and take some for laundry and some for cookery, because when the draft returned the whole class had to go back to the point at which they began the day before. But by practice all that has been arranged so as not to interfere with the ordinary conduct of school work at a period immediately proximate to the examination.

4629. Can you say generally what specific results the Board hope to obtain by introducing woodwork instruction?—Greater intelligence.

4630. Is that all?—And everything which is bound up with it.

4631. In connection with education you cannot do much with a child up to fourteen?—You can put him on the line which he may travel in life.

4632. Is it expected that you will develop greater intelligence by this kind of instruction than any other?—It is combined with the other; we do not ride one horse, we ride both.

4633 You ride three or four perhaps?—At present I think not; we have got as far as we can go.

4634. I understand from some of the witnesses yesterday you were running three or four horses. You insist on drawing in manual instruction for some boys and on instruction in elementary science for some boys. You have three horses going together to attain the same purpose?—I think that is putting it a little too broadly. When a boy reaches the fifth standard and upwards, he gets out of the run of the ordinary 3 R's of the lower standards, and if you are to employ him usefully in the school you must fill up his time. My object has been to teach a boy as much as I can teach him in the time which the boy can spend at school.

4635. As many different things you mean?—No, I give him the choice of things, but the one thing bears upon the other. You cannot teach manual training without drawing. Those two things go together. As to what is known as elementary science—I confess personally I don't place very much confidence in that in its bearing upon practical work—all the elementary science that for this purpose is needed is given by the teacher of the school who gives the elementary knowledge of the things with which the child is dealing.

4636. Putting it generally, have you found the results in the schools have answered your expectations?—More than answered them.

4637. Have you any specific proofs of that?—I point first to the gradual increase in the upper standards. I point to the reports from Her Majesty's Inspectors of the Science and Art Department. I point too from time to time to exhibitions of the work which has been done in the centres. Then I point to the general contentment of the teachers with the whole system, and the pride which the parents take in the whole work, and the zest of the children.

4638. Professor Fitzgerald.—With reference to the increase in the standards, I might say that in the fifth class the increase has been from 100 to 110·8, and in the ex-7th the increase has been from 100 to 148. The increase in the ex-7th class has been very much larger than the relative increase in the 5th class?—Yes.

4639. Mr. Struthers.—That might only prove that the work was more attractive to the boys, not necessarily more instructive?—I don't know what better test I can supply you with.

4640. But you find that the reports of those who examined the schools either for the Education Department or the Science and Art Department do show a distinct improvement in the schools?—Decidedly.

4641. Captain Shaw.—Is there any alteration in the average age of the standards?—I can ascertain that for you. It would require calculation. Our returns give the ages, but they do not give the standard of the child. I know the ages of the children, but I do not know whether, say, the children of thirteen fall into the sixth standard, or how many entered the 5th, 6th, and ex-7th. I cannot tell that from our returns.

4642. Chairman.—Will the returns not show, in the case, say, of the fifth standard, how many children of each year of age are in that standard?—No. But I can give you the ages of the children of the same year, that is to say, from 11 to 12, and 12 to 13, and roughly they correspond with the standards. But it is only roughly.

4643. What age corresponds roughly with the sixth standard?—12. You start with 7: a child of seven will be in the first standard.

4644. Monsignor Molloy.—Do you allow one year for each standard?—Yes, that is the normal period.

4645. The ideal?—Yes, the ideal; second standard, eight. Then I can give you the ages that correspond with them. The number of children between seven and eight was 57,035; between eight and nine, 55,517; between nine and ten, 56,018; between ten and eleven, 55,559; between eleven and twelve, 54,298; between twelve and thirteen, 49,429; between thirteen and fourteen, 25,254; over fourteen, 6,271.

4646. Professor Fitzgerald.—It is quite evident the reason why 49,000 in standard six exist, is because the children are not promoted year by year?—The numbers do not diminish at all in the same proportion in which they fail to be promoted.

4647. Monsignor Molloy.—There is another point. The great drop is between thirteen and fourteen. There is a drop from 49,000 to 25,000, and that is the age at which the pupils can go away without going higher than the fourth standard?—There is where the drop comes after twelve and thirteen. You will find the quick boys, who are promoted two standards in a year, form one series; then you find the irregular boys who lag behind, form another and opposite series; and I think you will find the irregular boys rather overbalance the exceptional boys.

4648. Mr. Struthers.—There is an important point connected with this. You know that long ago there was an age limit for each standard. That is now abolished, and has not the result of that been that the ages of the children in the different standards are rising?—I don't think it is perceptible.

4649. Why I ask is because it is very perceptible with us in Scotland. Instead of children passing the fifth standard at eleven they generally pass it at twelve, and if that were the case here it would largely account for the numbers?—I don't think it is evident on any large scale.

4650. You spoke of manual work as being preparatory to instruction in technical work?—Yes.

4651. And you are on the Technical Board?—Yes.

4652. Do you find that there is any evidence of any effect of this manual training on the pupils that come to the technical school?—The only evidence I think is derived from the number of those who are successful in applications for scholarships. Of the number of junior scholarships awarded by the Technical Board, you will find by far the larger proportion are won by children out of the Board schools. If you trace the scholars to the schools, you will find that the scholarships are won by children who have had the opportunity of this instruction in connection with their ordinary schools. I point, too, to the award of scholarships the Board themselves give. I can put in the return. I think the last examination that we had for the scholarships we have had entrusted to us, showed that there were about 300 children specially commended, and I think with, perhaps, few exceptions, all those children came from Board schools.

4653. Judge Shaw.—What are the subjects of examination?—The ordinary subjects.

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4654. They do not embrace any of the manual instruction?—Well, so far as the drawing is concerned. There is none of the actual work; but there is the ground work of it in drawing.

4655. CHAIRMAN.—Drawing is now compulsory in all the Board Schools?—Yes. What I have adduced is mainly indirect evidence, but it is the closest I can give as to the effect of the preparatory work upon higher training.

4656. You mentioned two points, first, that thegreat majority of these scholarships were won by children from the Board schools?—Yes, that is for the London County Council Technical Board.

4657. And secondly that they were won by children who have had manual training?—Yes.

4658. Both points would go to show the advantage of this manual training?—It is cumulative.

4659. So that, in your opinion, the children in the Board schools have a great advantage over the children in non-board schools as regards this manual training?—Entirely.

4660. Judge SHAW.—Are the scholarships given in technical work?—In any work which is common to all elementary schools.

4661. So any advantage they have is indirect entirely?—Yes.

4662. Monsignor MOLLOY.—When the scholarships are gained, where can they be enjoyed?—At the list of schools approved of by the County Council. First at secondary schools, and secondly at elementary schools, where there is a special teacher for standard 7. There is a list of schools.

4663. Are these secondary schools technical schools, or may they be ordinary secondary schools?—They are secondary schools, in the ordinary acceptation of the word, approved of by the County Council. In some special attention is given to science teaching.

4664. That is what is called the modern side?—Yes.

4665. But they are not strictly technical schools, like the Finsbury College?—No.

4666. Is the Finsbury College amongst them?—The Cooper-street school is. The People's Palace is amongst them. I am a governor of the People's Palace.

4667. Mr. STRUTHERS.—Is there any report of the work of the Technical Board?—There are quarterly reports. Would-you like to have some of them put in.

4668. I should be very glad. I think you said that the teachers are entirely satisfied—the ordinary school teachers are entirely satisfied with the introduction of manual work into the schools?—So far as I know I have heard no complaint, and I generally hear complaints if there are any.

4669. Have you had specific approval from many teachers?—Oh, yes. Not in conference assembled, but from individual teachers certainly.

4670. Judge SHAW.—In reference to one thing you said about the teaching of elementary science that you did not think that would at all effect the same purpose as manual training?—I don't think it effects the same purpose.

4671. But supposing the teaching of elementary science was made practical from the first by experiments conducted by the pupils themselves, do you not think it would supply a great many elements?—It is a much more difficult subject to deal with. Take elementary science, say in the matter of physics, the apparatus is a very costly apparatus to bring into an elementary school. The setting up of a physical laboratory is a much more expensive matter.

4672. Supposing that difficulty got over?—Then it does not in the same way minister to so large a need. You are training a child in a much more restricted area than you are when you are dealing with the larger subject of manual training in wood.

4673. In reference to the expense, would it not be much easier to have a system of elementary science teaching, experimental teaching in the ordinary school where you had no means of obtaining a separate department, than to introduce manual instruction, which requires a separate department?—I don't think it is found to be so in actual practice. We have under the Board our science lecturers. We have also certain laboratories fitted up for this purpose, demonstration rooms and science rooms in connection with certain schools. But there is not anywhere the same desire for this kind of work. It does not spring naturally, so to speak, from the wants and needs and desires of the boys as manual training does. It does not minister to the same aptitudes, so far as my observation goes, as manual work. That side of elementary science suits an altogether different aptitude.

4674. Different kind of mind?—Different kind of mind. The average mind does not apply itself to that subject so readily as to the actual use of tools. With reference to chemistry, the same kind of thing, not to the same extent, prevails. We have in connection with our boys' school at the People's Palace, a laboratory fitted up for physical work, but the boys do not go into that work with the same zest that they go into the engineering shop or the woodwork shop.

4675. Mr. STRUTHERS.—Which do you think gives the more advanced training?—For an exceptional boy physical science, but we have to mainly deal with the average boy. The exceptional boy we hand over to an exceptional institution.

4676. Captain SHAW.—Are you acquainted with the teaching in the Tower Hamlets district?—Mr. Heller's, yes.

4677. Do you not consider that successful?—Very successful. But it is a limited experiment, and its success is not in the number of boys taught, but in the way in which it influences the teacher.

4678. Would you say the tendency of the teaching of the present day is to co-ordinate all the subjects more than they were formerly?—Our object is that. How far it is attained depends upon the teacher.

4679. How is the material for this laundry work supplied?—Do you mean the material which is washed?

4680. Yes?—We supply that material. But we allow in certain circumstances and certain conditions the children to bring soiled linen themselves.

4681. How long do the children work at the laundry at a time?—I think about two hours, once a week.

4682. Do you consider that the best method of instruction in laundry work?—It is the best method, to my knowledge, yet devised.

4683. In some places they teach them for a whole week at a time, and can carry on all the operations of the washing that they are doing; do you think that would be an improvement?—I should like to see it. I could not express a theoretical opinion upon a practical subject. Everything would depend upon what my view of the experiment on a large scale was.

4684. My point is, that in two hours you cannot get through a week's washing for a family?—We do not purpose to do so.

4685. You can only do one small part of the washing; the children cannot have the clothes dried and come back to the ironing and making-up?—They do not come back to the same article; they perform the other process on some other article. A girl comes into the school at 9 o'clock and works till 12, that is three hours, and in the afternoon from 2 to 4.30. The girl does the lesson which she has reached during that time, and next time the work is organized so that the girl goes on with the next lesson, whatever it may be.

4686. There is a system by which the children bring the clothes at the beginning of the week, and at the end of the week bring them back properly made up, which shows the effect of the teaching to the parents, and creates a great interest in it?—I don't think that would be popular in London—to turn schools of instruction into wash-houses for the people.

4687. You practically do the same thing, only you do it on clothes supplied by yourselves instead of what they bring?—No, we draw the distinction so as not to pass into the limits of a trade.

4688. As to this housewifery, what is the nature of the house in which these children are put?—Two rooms, which are furnished as an ordinary artizan's rooms are furnished.

4689. Is there any house-keeping taught—actual expenditure of money?—Oh, yes; they are taught that in the course of their lessons.

4690. Do they have any actual experience in it?—I think they are taught that in connection with their cookery work—taught to go out and buy vegetables

4691. They actually do market themselves?—It is not universal, but it is comprised in the course.

4692. Mr MOLLOY.—How long prior to '87 was the London School Board in operation?—Since 1870; we were created by the Education Act of 1870.

4693. What were the immediate circumstances that led to the introduction in '85 or '87 of the manual instruction?—Some of us thought that we were giving our attention solely to the literary side of education, and we thought it would be well to place the whole matter upon a larger basis.

4694. How long did it take to provide qualified teachers for the manual training?—We had to train them.

4695. And that extended over a period of ——?—Mr. Barter, who is present, was first appointed by the Joint Committee as their instructor in this work, in 1887, and under him the teachers have been trained. That has been our great difficulty. Mrs Lord was appointed our first instructor in laundry work She was an assistant teacher in a school She has taught nearly all our teachers. Parenthetically, I ought to say in reference to laundry work that Liverpool has a school of laundry, and Miss Calder is the superintendent, and that she has taken just the same interest in it in the north as we have in the south. We have had to train all our teachers in housewifery. The Joint Committee is now training teachers in domestic economy, which is a co-ordinate of all three.

4696. Are they new teachers?—They are not new teachers in the sense of being new to school work, but they are teachers who, having some experience of school work, are providing themselves with this additional qualification.

4697. We may assume that no change has taken place in the number of school hours per day since the introduction of this manual training?—No; the only change that has taken place has been that in certain schools which we call higher standard schools we allow the children to remain for half an hour longer, but that is optional.

4698. Have any literary subjects in force before '87 been more or less displaced by the new system?—I don't think by the new system; but I think certain parts of the study of English analysis have been curtailed, and I am clear they were not of any practical use.

4699. If a parent of a pupil should object to his being taught the manual instruction in a school what course then is pursued?—The cases do not now arise; may I say that they did arise originally in the case of cookery and laundry to a little extent? We had to wink with both eyes at it until people were won over.

4700. Where the manual instruction is carried out elementary science is also carried out?—Yes, but not to the same extent.

4701. One cannot be accepted as a substitute for the other?—No, they look to different ends.

4702. Rev. Dr. WILSON.—After the children left your school have you had evidence of the good effect of the instruction that they received; for instance, take girls, have they become better servants?—I cannot tell. I saw a correspondence in the newspapers saying that no servants were to be had—I don't know how far that is evidence. But I can put in a return, which I think you will find extremely useful, of the children who left school, showing what occupations they went to. I can put in a return of that kind for London.

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4703. Professor FITZGERALD.—The organizers here of all this work have been appointed by the School Board, not by the Education Department?—All our officers are appointed by the School Board.

4704. And those who have organized this manual instruction and science teaching and so on, cookery and laundry class—those are your officers not the Departments?—Yes

4705. Have the voluntary schools joined in this work?—Well, under the Joint Committee nearly all our six centres are used by voluntary schools to their full capacity.

4706. That is that the voluntary schools have combined together to use them?—When they are near a centre, in some cases the voluntary schools have set up their own manual training centres, and also they have set up their own cookery centres, but that is on a very much more restricted scale than under the School Board, because the voluntary schools are not worked from a common centre; they are separate individual institutions, and everything depends upon the financial capacity of each institution as to whether it avail itself of these opportunities or not.

4707. They have not any opportunity of getting organizers?—They have the opportunity, but they have not the money. Assuming that they take advantage of the Bill, which has not yet become an Act for association, then of course it will be impossible to organize voluntary schools *pari passu* with Board Schools.

4708. Supposing it was desirable to start this in a new place, take for instance the City of York, how would you propose to do it—by appointing organizers or inducing the local Board to appoint organizers?—I would suggest that they should proceed by way of experiment as we did.

4709. You think it would be well for each locality to start experiments of its own?—I mean each locality of a reasonable size.

4710. CHAIRMAN.—You mean localities of fairly large size?—You cannot work out these plans unless you have a fair number of schools to work from.

4711. Professor FITZGERALD.—There is a commercial school at Brussels. Have you started anything in connection with Board Schools to assist specially in commercial education?—Not beyond the ordinary subjects which are in the Education Code.

4712. Is there book-keeping in the Code?—Oh, yes.

4713. Mr. STRUTHERS.—Shorthand?—Yes, shorthand.

4714. Professor FITZGERALD.—You have not started any special commercial course like a laundry or cookery course?—No, because those are dealt with in the ordinary schools, and in the evening schools.

4715. There are evening schools?—We have evening schools for children exempt from day schools. Nearly all those schools are attended by scholars for those special subjects you have mentioned. There are about 26,000 scholars or so attending evening schools. The average attendance is about 16,000. The number admitted during the session is about 50,000.

4716. You think, as a general rule, they are attended by people who are going to be shopkeepers, as distinguished from going to trades?—They are attended by persons in some occupation. I was at an evening school last night and I saw there two pupils of fifty years of age. They had come specially to learn book-keeping. They had a certain allowance a year, and had got the notion into their heads that if they knew book-keeping they could make it go further. A large number of laundresses attend, in order to learn how to keep their accounts, and a number learn shorthand.

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4717. Then, these classes are attended by people who want to learn these commercial subjects?—Yes.

4718. CHAIRMAN.—It would appear from the report that such subjects as cookery, manual training, laundry, and woodwork, are dealt with in the continuation schools?—Yes; but there is not the same demand as there is in the day school for that class of work: the demand is more for book-keeping and dress cutting for girls, shorthand, and typewriting, and commercial geography.

4719. You have over 3,000 pupils on the rolls of these evening continuation schools for cookery?—Yes, nearly 4,000.

4720. And over 2,000 on the rolls of these schools for manual training and woodwork?—Yes, nearly 3,000; but that is very few out of 50,000.

4721. Monsignor MOLLOY.—You mentioned the year in which the Joint Committee for manual training was established?—1887.

4722. That Committee is still in operation?—Yes.

4723. Is it your evidence that the School Boards have profited by the action of this Committee?—All this work could never have been undertaken but for this Committee, they have demonstrated the possibility of it.

4724. They were in a position to make the experiment which the School Board were not in a position to do?—No, we were surcharged for doing it.

4725. And, the experiment was successful as started by the Joint Committee and carried out by the School Board?—It passed through three stages. The Joint Committee tried the experiment, the Education Department approved of the experiment; and the School Board have imitated the experiment.

4726. How does the system of centre schools work out in practice? Is it working efficiently?—I think it is working very efficiently.

4727. As I understand these centre schools they are, practically, schools for the higher standards and accessible to pupils from the schools around?—They are only accessible to pupils in such order as we admit them. A child of any family in the neighbourhood of a centre can only get admission to the centre by being on the roll of any Board School.

4728. That is what I mean, that they are available for pupils attending other Board Schools in the neighbourhood?—We organize all that ourselves through the Central School Board office.

4729. The Central office is favourably disposed towards the admission of children from the neighbouring Board schools?—Yes; we arrange the admission in rotation, so as to keep the centre always full. We direct the teachers of the schools how many to send, and on what day to send them. The organization springs from the Central office, not from the school. The schools are directed how many children they are to send.

4730. Do you find the neighbouring schools are always ready to send up as many children as the Central office will allow?—Always. Our difficulty at present is, not that they don't send up enough, but that they nominate too many for the existing centres. We have at this moment 73 centres in process of erection.

4731. You obtain pupils for the higher standards in these centres as rapidly as you can establish the centres?—As rapidly as we can establish the centres.

4732. I understand that you are in favour of physical science being taught in primary schools, though you are of opinion that manual teaching is more advantageous?—It ministers to a larger need.

4733. And, also, there are certain difficulties of cost with regard to the teaching of physical science?—Yes.

4734. With regard to the difficulty of cost, we visited some schools which were under Mr. Heller?—Yes; in Tower Hamlets. You went to Rutland-street School.

4735. Yes; and as I understand it, they do not undertake to teach there a course of physics or chemistry, but they undertake to teach certain fundamental principles which underlie physics and chemistry and other branches of science; and I think some of the difficulties which you suggested about the teaching of physical science are got over by that method. For instance, the cost of equipment, we were told, was about £13?—Yes. I think you must have been told that exclusive of the balances. A balance is costly.

4736. The cost of each balance is only 30s.?—Yes. Every child ought to have a balance.

4737. I don't think so. In each school there were two or three balances?—I know they have not got them; they have asked for them.

4738 I understand they worked satisfactorily with two or three balances, by dividing the children into batches having three or four sets of two each, working out problems at the same time, so that by division of work the limited number of balances would be sufficient for the work?—I am perfectly prepared to admit that the experiment we have tried with Mr. Heller, which is simply a succession of the previous experiment which we tried under Mr. Gordon, as far as we can gauge and observe it, is a much better mode of instruction than that which is generally recognized by the Science and Art Department: but I don't think, even so, that it is capable of the same extension.

4739. But it is free from the great difficulty of expense?—Free of some part of it.

4740. The expense of the equipment for teaching physics would be very great, but the expense of teaching this particular course of chemical and physical principles is comparatively small?—You must draw a distinction between what has been allowed and what has been asked for. You have seen it in its shorn condition. I have seen it rather fully fledged.

4741. But what we saw seemed to me to be sufficient for the purposes of an elementary school, and to be sufficient to constitute a foundation for a further and more advanced course of science in the secondary technical schools?—Of course it is very gratifying to me to find independent testimony of the fact that we are not starving education as we are sometimes accused of doing.

4742. CHAIRMAN.—Let me ask you a question about the cost of balances. I have read an interesting paper by Mr. Rooper who describes a form of balance that can be constructed for two or three pence, and he states that for the purposes of the elementary school, it would be of great use?—He was inspector for Bradford. I have not seen the balance. He will probably send it to us when it is constructed.

4743. Mr. STRUTHERS.—These balances are made in Rotterdam?—I don't know where they come from.

Professor FITZGERALD.—One set was made in Rotterdam and another by Griffiths, a London maker.

4744. Monsignor MOLLOY.—You said, incidentally, that you thought the chief advantage of this system of teaching science was the influence it exercised on the teacher. Would you explain that?—When I was asked the question, I said that Mr. Heller's system had been more useful as I thought in its influence upon the teacher, that is through teachers' classes, in teaching teachers sound methods, than in any influence it had upon the boys, because Mr. Heller came more into contact with the teachers than with the children.

4745. He teaches no teachers in Berners-street. He gives only model lessons to the pupils; and it struck me that the boys took an intelligent interest in what was done?—In all these things a distinction must be drawn between the teacher and the teaching. Mr. Heller is an extremely capable person, but the same system in the hands of an ordinary individual might not be quite so attractive.

Monsignor MOLLOY.—I quite agree. It struck me that the success of the system must greatly depend upon the individual teacher.

4746. Captain SHAW.—Does not the same remark apply to manual instruction in woodwork?—Of course, but in a different sense. It is not taught by the ordinary teacher of the school.

4747. He must be a teacher with good methods to effect good results in manual work?—Not only must he be a teacher with good methods, but also a teacher with manual capability. The other system we have to deal with, is a system by which we teach the teacher already in the service of the school, but we don't find them all equally enthusiastic. Where we get a man who is enthusiastic he does the work admirably.

4748. Mr. STRUTHERS.—You hold it is more difficult to make science teaching as attractive as manual work to the average boy?—It does not suit the average boy.

4749. Monsignor MOLLOY.—As regards training colleges, do you think it would be desirable that all teachers should be trained in manual work, in drawing, and in the elements of physical science?—I don't think it is desirable to crowd too much into those earlier years of training. We do not expect these things from teachers who come out of college. If you look at our Rules you will see the increase in the early increments of salary depends upon the teacher improving his qualifications when he comes out of college.

4750. Do you not think that these are subjects exactly which they can learn only in college?—That is not so with us. Mr. Vaughan will tell you that he has trained 2,000 teachers in card work, and the same in modelling, all after they left college; all advance of education, that is in our work in the School Board in all its range, has taken place after teachers have left college. Take, for instance, physical drill. Our teachers have been taught the system of physical drill, which they practise in the schools, after they have left college.

4751. Where do they get this training?—Evening classes.

4752. Where are these held?—At various centres.

4753. And the teachers come from the various schools to these centres?—From their homes.

4754. CHAIRMAN.—Are these centres scattered all over England?—No; I am only speaking of our own work. A great deal of this work has passed from the School Board into the training colleges—physical drill has, and kindergarten methods.

4755. Monsignor MOLLOY.—Of course, in London, you have facilities for giving this course to teachers after they have entered on their school work, but if you take a country like Ireland you cannot get hold of the teachers after they have left the training colleges?—No; that remark also applies to the rural districts of England.

4756. Whatever they take from the training colleges is their equipment for life, except so far as they can develop themselves?—Yes; but if you consult the heads of the training colleges they will tell you that to largely increase their curriculum at present would be impossible.

4757. Can you say how the subjects can be taught if the teachers are not taught to teach them?—The only suggestion I can make is to have organizing teachers; the ordinary teachers will never be able to teach these subjects. Exceptional men may. You will have to group your schools, and send round special teachers for this purpose.

4758. That is to say, the ordinary teacher will only teach the ordinary subjects?—He may teach a little more, probably drawing.

4759. CHAIRMAN.—Also, I suppose, hand and eye training?—Yes.

4760. Monsignor MOLLOY.—But for manual work and physical science you require special teachers?—You must take groups of schools, and send your organizer round, as Mr. Heller and others teach in London.

4761. The organizer would be the teacher to teach the pupils?—Yes.

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4762. CHAIRMAN.—So that he would be a peripatetic teacher?—Yes.

4763. And it would be conceivable that in certain districts the peripatetic teacher should not only teach the pupils but should teach the teachers as well?—After they left the training colleges.

4764. Monsignor MOLLOY.—Then as regards the teachers of girls' schools, would you say the same in reference to domestic economy, laundry, and cooking?—Certainly.

4765. You think the ordinary teacher would not be able in her school course to learn these subjects?—In her school course certainly not. You have practically two years at your disposal in college. There is a great deal of literary work to be done, what I would call distinctively book-learning, mathematics, and the various forms of school management. Literary papers have to be mastered, and I don't think you could increase that work to any considerable extent, nor do I think it is desirable. The broader culture you give your teacher during that very valuable time at college the better.

4766. But would you call it broader because you exclude certain subjects?—I call it broader because I except certain subjects. I call it broader because it is a more general kind, not a special kind.

4767. Then take manual work. It has a great educational value?—It has a great educational value, but its value is not of the highest. What I have been trying to impress on the Commission is that manual training is very good, because it suits the capacities of the average boy; but when dealing with the teacher I should not propose to cultivate the highest intelligence of the teacher by sending him into a carpenter's shop.

4768. Then your view is that training at the college should be mainly on the literary side?—I don't adopt the words "literary side," but I do think that the object of the college career is to give the highest form of culture that can be given to the teacher.

4769. We had the other day the evidence of Professor Armstrong, who represents chemistry, and he considers that by excluding the principles of science you are excluding the best kind of training?—I don't know what Professor Armstrong would call the principles of science.

4770. Exactly what is taught under Mr. Heller?—When I was at Oxford, I don't think the people who went into the Natural Science school were very much distinguished for general culture. I think they specialised too soon.

4771. Physical science is not more special than geography?—Well!

4772. Therefore you do not specialise more by taking up physical science in the training colleges than you specialise by taking up geography?—Geometry is a limited subject.

4773. Geography?—Oh, I beg your pardon. I think, as far as geography is concerned, much comes under the name of geography which I should consider of the highest possible value under the head of culture.

4774. Don't you think the elements of science are of the highest possible value in the direction of culture?—They are valuable if followed up by an advance in some special form of science.

4775. I thought you were of opinion that they were valuable for their educational influence upon the mind?—Upon certain classes of mind perhaps. That, I think, I have already pointed out. My difficulty is that they don't touch the average mind, and when you are dealing with the training of teachers you are dealing with the training of persons who have to deal afterwards with the average mind. I desire that the education the teacher is subject to should be of the broadest and most general character, and when they have time and opportunity to acquire those other aptitudes I would say, encourage them then to acquire them.

4776. I have great difficulty in understanding how you consider that the education of the teacher is

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made broader by excluding physical science?—I don't want to exclude anything, but I do want to take the subjects in the limited time at our disposal which experience has shown to minister, on the whole, to the larger need.

4777. Experience shows it only because the other system has not yet been fully tried?—It is fair, is it not, when you are dealing with an existing institution to let the experiment be tried by somebody outside before you interfere with the basis of the work?

4778. Of course that is the advantage which those who stand up for a strictly literary education have, that all experience is with them, and the experience of the effects of science teaching is recent?—I should be sorry to say a word derogatory of the value of scientific culture, but I venture to draw a marked distinction between what is scientific culture and what goes under the name of elementary science. I have suffered myself from elementary science in schools. There is really a confusion of mind upon the subject. I feel certain upon that point

4779. Professor **Fitzgerald**.—Don't you think that some of us have suffered also from Latin grammar?—I don't know

4780. Judge **Shaw**.—I understand you to mean that multiplication of subjects, with each subject given in fragments to the teachers, in the training colleges do not minister to culture so much as a thorough grasp of a few subjects?—That is what I mean.

4781. Monsignor **Molloy**.—Then in order to avoid multiplication of subjects, you cut out physicial science altogether, rather than one of the literary subjects?—On that point I think the only difference between us is this point of the training colleges, the point that I am trying to enforce is that for a certain number of those other subjects you must trust the teacher to qualify himself or herself at a later stage.

4782. You look upon physical science as an excrescence on education; that education is broad and complete without it; that it may be acquired afterwards, but that it is not of the essence of education?—Decidedly not part of the essence of education.

4783. Mr. **Struthers**.—There are different views of what are essences. There is Professor Armstrong's view?—I am not prepared to answer for Professor Armstrong.

4784. Professor **Fitzgerald**.—There were no questions asked him as to the improvement of art training. This is part of the practical training. What is your view of the art training that is to be got in the London schools?—That only a certain number of boys can avail themselves of it—a boy with taste—and he does extremely well.

4785. You think for instance, in reference to freehand drawing, that it is more important that geometrical and mechanical training should be taken by the boys rather than that freehand drawing should be pushed very far?—I am speaking now of higher work,—I mean drawing from the cast, original design and matters of that kind,—I think you cannot press those universally.

4786. In speaking of the advantages, don't you think it is occasionally successful. We saw the Alma school yesterday, and it is a very remarkable school of design?—Yes; it is not every boy who can design. Take the exceptional boy and give him an exceptional teacher, and he does very well.

4787. You think that is a kind of thing that cannot be carried on by ordinary teachers?—I think not. The ordinary teacher will take the ordinary compulsory drawing, and sometimes he will take brush work and new developments of drawing.

4788. These are developments in the art direction. Do you think it is desirable that the art side should be expanded as far as possible?—I think brush work is in its experimental stage at present. It has only been going for fifteen months, and I don't think opinion is ripe upon it.

4789. Judge **Shaw**.—I saw a school yesterday, and they must be all exceptional boys in it, for everyone was able to do this work?—I was not speaking of brush work. I was speaking of the art training of such schools as we have for instance at Lavender Hill.

4790. Mr. **Redington**.—Is manual work compulsory in the 5th, 6th, and 7th standards?—Practically it is. It is locally compulsory any way.

4791. How can you prove that the increase in the number of pupils in the higher standards since the introduction of manual work is due to that introduction?—I cannot prove it. I simply say they are concurrent.

4792. Do you think the advantage of manual training is that the intelligence of the boy is quickened, or that the boy is made more efficient when he enters a trade subsequently?—I think that the ordinary boy is made more intelligent. Every boy who goes into some handicraft afterwards begins by being more useful. That boy profits in both ways.

4793 Has there been any effort made to introduce it into rural schools?—I don't think in the country it has been tried. I cannot at this moment recall any place.

4794. You suggested just now the possibility of having in Ireland organizing teachers who might teach in the rural schools Has that been tried in England?—The only way in which the subject has been tried in the rural districts has been through the operation of the Technical Committees of the County Councils, that is in evening schools.

4795. You don't know whether they have established a system of peripatetic teachers?—In evening schools they have, not in day schools, because there is no corresponding opportunity. I have been mayor of a little municipality in Kent where we have evening classes for woodwork under the Technical Education Committee of the Kent County Council, but I don't think in the rural day schools it has been largely tried.

4796. **Chairman**.—I should wish to ask you one or two further questions as to the cost of compulsion. Will you kindly explain the figures upon page 206 in the report? The total cost of the School Attendance Department is there set down at £47,600?—Yes

4797. How many items go to make up that? Do you consider all of it expended directly on the enforcement of the Compulsory Attendance Act?—No, the salaries of the superintendents—well, the superintendents superintend the visitors—and of course the visitors are employed in both scheduling and ordinary compulsion. Then the attendance officers are mainly occupied in the preliminary stages of compulsion; that is, in looking up irregular children. A great deal of that work is done, and it is altogether lost sight of in the returns when you come to the number of notices. The child must be very irregular before the first notice is served which leads to the summons before the magistrates.

4798. But let us keep to the expense in connection with compulsion. Looking over the figures you see £40,000, the cost for the preliminary stages, roughly?—You must take it that six weeks in the course of the year are occupied by the whole staff in the work of scheduling, that would be one-eighth of the £40,000.

4799. Have you any idea of the percentage of school-going children that you really have in school in London?—I make it to be about seventy per cent. I think it is very possibly about that.

4800. That then is the result of twenty-five years working of all your costly compulsory machinery?—Yes; but I think you must look at it a little in detail.

4801. In what respect?—In this respect, for instance. You cannot assume you will have 100 per cent. there every day of the year—in infant schools especially.

4802. I don't assume anything of the kind. I know quite well you cannot have 100 per cent.; but I want to ascertain the actual results of all this expenditure of £40,000 a-year. The Act of Parliament has been in

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operation for twenty-five years in London, and you have about 70 per cent. of the school-going children in school?—Yes; but that is not the sole result of this work. The result is, that you have all the children on the school roll who ought to be there.

4803. You speak of the children who, you say, ought to be there. I don't understand that. My question is as to the percentage of the children of school-going age who are actually in average attendance, and you tell me that there are only about 70 per cent after twenty-five years' working of a Compulsory Act that now costs London £40,000 a year?—I should say, roughly, not more than three or four per cent. of the children on the roll are absent from school from causes now which would enable them to be present if they chose to be present.

4804. I don't at all imply that the machinery is not working most efficiently; I want to get at the actual fact. The result of the working of this most perfect compulsory machinery which you have in London is, that you have only 70 per cent. of school-going age in school?—That is the total, but that is not the result. What would you have if you had not compulsion?

4805. Of course I cannot say. Let us keep to the facts. As a result of your costly compulsory machinery you have only 70 per cent.?—Not as the result, but with the exercise of compulsory powers you have it. I don't look on the one as the result of the other.

4806. Take the facts as they are: all this compulsory machinery does not give a more perfect result than that?—Obviously.

4807. That, at all events, is the outcome of the existing system, that you have 70 per cent. of the children in school in the London district?—It is the outcome of the existing state of affairs; I don't say of the system.

Chairman.—My only reason for going into this is that I fully agree with you. But we have people in Ireland who think they are showing great zeal in the cause of education by pointing out that we have not 100 per cent. of the children at school in places where there is no Compulsory Act in operation, and proclaiming that we should have the 100 per cent., or something near it, if we had compulsion there.

4808. Monsignor Molloy.—Do you consider that this 70 per cent. is really 100 per cent. of the children who practically can go to school?—Yes; that is my point

4809. How do you account for the other 30 per cent.?—In all sorts of ways An epidemic of measles occurs, and in school after school the attendance drops for weeks.

4810. Chairman.—In the account of the schools I see an item entered year after year since 1892, "fee grant, 9*s.* 10*d.*" That is the 10*s.* grant?—Yes.

4811. Why is it not 10*s.*?—It is calculated on the average attendance up to the 25th of March.

4812. It is 9*s.* 10*d.* evenly every year. Ought it not to be 10*s.*?—Of course, if the School Board suddenly came to a stop it would be 10*s.* 2*d.* for that period, but it really represents 10*s.* as the amount received, when the period is divided by the aggregate attendance.

4813. There is one other question: the £1,000 a year the Drapers Company give you so liberally, do you know out of what fund they pay that £1,000—is it out of their trade profits in London—you know they have estates in Ireland?—They had estates in Ireland, but I think the tenants have the estates now.

4814. Then, I suppose the Drapers Company have the purchase-money?—I don't know what they got.

4815. Judge Shaw.—Have the Drapers Company any other funds independent of the value of the estate?—Oh, yes, large funds independent of the value of the estates they had in Ireland.

4816. Captain Shaw.—Are there any figures which would show the percentage of children who ought to attend, and who do actually attend the school some time during the year?—Yes; the average number on the roll for 1896 was 512,420. The average number present at all during each different week of the last school year was 457,663.

4817. That does not give exactly what I want. How many did not attend the school at all during the year who ought to attend?—I don't think there is such a return. It would be a return drawn by inference from the existing returns. It is inconceivable as far as I can see that any considerable number of children should be a whole year without attending school.

4818. Those figures give the average attendance; they do not mean that 30 per cent. of the children do not go to school at all during the year?—Oh, no

4819. Mr. Struthers.—The compulsory powers serve to secure the attendance of children of school age at school at some time or other during the year, and they must be on the roll?—Yes. May I make an observation with reference to your 30 per cent.? Have you taken the total number of children scheduled?

4820. Chairman.—Yes?—You will find there is a little element of error in that. The number of children are scheduled from three years old to thirteen. The number under compulsion is from five years old to thirteen. Roughly, I should think the number of children under five must be nearly a fourth of the whole number, and they are not under compulsion, and I don't think that more than three-fourths are found upon the school roll.

4821. Mr. Struthers.—By the compulsory system you increase the number of children on the school roll? The point I want to bring out is this, that the proportion of children in average attendance to the number on the roll would be greater under a voluntary system than under a compulsory system?—I suppose it would be to some extent, because they were on the roll of their own free will, and would naturally attend more. The habitual truant under that system does not lower the average.

4822. Under the compulsory system the number on the roll is increased to its utmost limits?—Yes, and having the irregular child there, the attendance of the irregular child pulls down the general average.

Mr. Solomon Barter, Organizer of Manual Instruction to the School Board for London, examined.

Mr. Solomon Barter.

4824. Chairman.—Kindly explain to us the position you hold in connection with manual training in London schools?—Do you mean my official position, or the work I have?

4825. First, the position you hold?—I am the chief officer who has charge, practically, of the organizing and equipping of the centres and instructing of the teachers; I have to inspect and teach the teachers, and equip the centres and organize them.

4826. Have you any responsibility for the actual teaching; have you any classes to teach?—Oh, no; I teach the teachers. The only time I teach a class of children is when I go into a centre and find some teacher probably not teaching as I think he should. Then I take the class out of his hands, and teach the class for perhaps the whole afternoon, or for ten minutes, as the case may be.

4827. You have some information to give us on the educational aspect of manual training. But first as to the history of its growth in London. You heard Mr. Diggle's evidence?—Yes.

4828. Did he sufficiently explain that?—He sufficiently explained the Government side of the picture; he put to you the impossibility of taking it for want of funds, the aid the City and Guilds give; but he did not put to you what caused a demand in the public mind for such instruction.

4829. It might be interesting to have that from

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you?—In doing that, I shall be obliged to touch somewhat on my life work. I am not a London teacher; I was trained as an artizan. My father was managing foreman to a very large builder, one of the largest in England; and I was taught early in my life to draw, and early in my life I became a foreman and designer in our building work; I had charge of some hundreds of men. I became a teacher under the Science and Art Department for this training, and it is some years altogether since I first attended a meeting at which Mr. Buckmaster was present, and advocated artizans attending for the purpose of education, the Science and Art Department classes. These classes have been of immense benefit to the artizans; but there is one thing they always lacked—for instance bricklayers and carpenters would go to learn solid geometry, or cabinetmakers might learn design, but in every case what the men felt, and why they took so little interest in it was because they could not see a direct application of the theory they were being taught. What was wanted and felt by a good many men who were better educated than most of the artizans, I amongst them, was the application of the science or art to our particular wants in our industries. I started teaching under the Science and Art Department, and when the City and Guilds Institute was starting its work twenty years ago, I gave evidence from the artizan's standpoint: I was then foreman at Messrs. Geo. Smith, in Pimlico Before the City and Guilds of London started their schools, there were many teachers who did endeavour to get classes of artizans together, a class for plumbers, another for carpenters, and another for brickwork. But we had not apparatus.

4830. Was that a matter of private enterprise?—Private enterprise; then the Institute came along, and what they have endeavoured to do was not to cross subjects with the Science and Art Department, but to take advantage of the theories laid down by the Science and Art Department; but since the Institute started its work and the technical teacher came to teach the average child who came out of an elementary school, he found two things; one was that the child was stopping longer at school, and the skill of hand which we got in the older days, in the 13th and 14th centuries, was getting lost, because the child then started earlier in life to use its hands, and you cannot get that skill late in life Further, teachers found also that although the boys had been taught some drawing, the drawing lacked exactly the same thing they had always been asking for—some reality; consequently when they came to teach them, they found no basis of work to work upon, hence it was the cry of the technical teacher that brought about the necessity for this manual instruction. Then came the voluntary efforts on the part of the London School Board, and I believe other people have tried. We tried it with a school, that was a failure; then we tried it under the Joint Committee, and trained a number of elementary teachers. Every teacher who had a class went to the centre and took his class, that was a failure.

4831. You began with these centres?—Yes, and when the Board took up the work we trained wholesale our own teachers under the Board, and every teacher who had a class in the school went into the centre from 3.30 to 5.30 after the ordinary school work, and took his class: it was a failure, mostly because the amount of training which he went through was too short, and it was too late in life at three or four and twenty or thirty years of age, for him to acquire skill. Then, he had to do that in connection with all his other work, and keep his workshop in order; that he could not do, it was impossible. If you could have kept the machinery going it was well, but it broke down of itself, and that is why you see to-day in London a centre system, and not a class system at work.

4832. You have told us that you have some observations to offer; first, as to the effect of this manual training on the child; secondly, as to its effect on the work of the school, and, thirdly, regarding it as leading up to technical instruction. Now, first, as to the effect of it on the children of the school?—It increases the attendance. When I am going to organise a centre, I call a meeting of the headmasters of the surrounding schools. If a man has not had it in his school before, and particularly if he happens to be an older man, he will say "I have not much sympathy with the work. I don't believe it has much educational effect. I think you will rather damage the literary education, in fact I cannot face it with the crowded curriculum." Others say "I won't express an opinion; I will give it a chance."

4833. Could you tell us in a general way what proportion of the ordinary teachers took cordially to this system, and what proportion set out by objecting to it?—I suppose when we first took it to them it would be fair to say 60 per cent. objected to it, but when a man has had the work in his school for a year or two, he is generally converted to it. In one of the worst schools I know in London, Nine Elms, are children of the worst class of people you could find, and another school in Deptford is just another similar picture.

4834 You mean that the children are of an unpromising description?—Yes; yet one of the masters said "I have done the best year's work I ever did, and that room is responsible for it." Teachers generally tell you that instead of losing they have gained, and it must be so, if you cultivate in a boy his powers of observation and get him concentrated on anything, if it is only for one-tenth of the week, for what is done to-day will be followed to-morrow. A man that does wrong by habit will do wrong always. You cannot teach by the cane; you have to get a voluntary surrender of the child, and if you can put any form of instruction in the way that the child likes, you have secured from that himself, and when you have once got from a child the habit of attention, it is something you cannot buy or enforce.

4835. Then you know from experience that the children like this branch of work?—This is a common thing—"Boys, I have a half holiday, and I have to be at the centre; you can come if you like. Forty boys, all with their aprons on, will be outside the door, asking, 'Please, teacher, may I stay and work.'"

4836. Is there any notable feeling amongst the teachers hostile to this branch of work?—Not now. it is nearly dead; that has gone. I should say you won't find one man, for I know that 90 per cent. are in favour of it.

4837. Then there is no considerable body of feeling amongst the teachers antagonistic to this branch of work?—Not at all.

4838. This covers the effect of manual training on the child and on the school work; now what have you to say about it as leading up to technical instruction?—Just now I told you what the technical teacher has asked for. The technical teacher does not want instruction given so that it may have a bias towards any particular trade. Mr. Diggle told you there was some opposition amongst the Trades Unions in the beginning. I used to have charge of about 200 Trades Unionists, so I know the feeling of the men, and there was a big flood of opposition coming to it eight or nine years back, both from the technical teacher and from them. What the technical teacher said is "You must be so careful to make this work a basis for drawing or a basis of science teaching or make it surround the school life so as to increase the intelligence of the pupils, while at the same time you are cultivating skill of hand." That was his side of it, and you may not therefore get it into a trade rut. It is not because you use carpenter's tools, *carpentry*, or because you stand at a lathe side, *engineering*, but it must be a distinctly rational cultivation of the child's senses, rather cultivating what the child already possesses.

4839. That is to say, it should develop the child's

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powers generally, and not in the direction of any particular trade?—Quite so. The Trades Unionists objected to it strongly from a purely Trades Unionist point of view. I had to go all over London and preach to the Trades Unionists exactly what we were doing. I was able to approach the men in a manner in which no bigger educationist could, because I had worked with the men and understood them.

4840. And they had confidence in you?—Well, confidence in the manner in which I put it to them, at any rate.

4841. I understand from you that manual training as you understand it, does not lead in the direction of one trade rather than any other?—No.

4842. Do you think this training useful also for children who are not going to any trade at all?—Quite so.

4843. It develops those faculties that would be of use to them in after life?—I think so. Mr. Diggle seemed to divide science education quite apart from it. I think what we ought to try to do is to co-ordinate the lot. For instance, if a lad can make some apparatus used in the chemical or physical laboratory, make a drawing of it and make the thing, we have done something. If solid geometry is taught in the organized science school, and if by pieces of wood we demonstrate that to the child, we have done something, and if we are teaching art and can model in wood or clay you are doing something and helping along, without teaching any particular industry. Most of the manual instruction that is given in this country is too mechanical, and I would like to point out to you something of the educational history of manual training. When we first took up this work we used to make a lot of carpenter's joints, and the first view which was held of it was to look at the joint in its order of difficulty and to grade each joint in that succession.

4844. Merely making the joints as exercises?—As disciplinary exercises. But most educationists in this country are in favour of purely disciplinary exercises. That arises from two factors, one that the creation of articles of furniture is likely to bring the instruction into conflict with Trades Unionists, the other side of the picture is that one is apt if you simply make things, to lose sight of the disciplinary training which should and ought to surround the work.

4845. They think this is better secured when the children are merely working at exercises. I assume we are to understand that when you distinguish between exercises and models, you take the word "model" in a special sense, as it is taken in connection with the Swedish Sloyd system; by a model you understand, not a model in the ordinary sense, a thing to be copied by someone, but a completed article?—Yes.

4846. So then we have "models" and mere exercises. You are speaking at present of the exercises?—The exercises. Shortly after we started the exercises it became pretty apparent to me that the children did not work accurately, and were not giving the same interest to the work which they commenced with. I am speaking perhaps of the 20th lesson, so I said to my assistant, "I am going to let this boy make a bracket." I was surprised at the accurate work I got. I tried it with some more boys, and then it became pretty apparent to my mind that the model was to be in some degree the essence of the instruction. At that time nobody had been to Sweden or France. In France you get the picture to-day of the side of purely disciplinary exercises. We are too apt to think that Sweden is the birthplace of manual instruction instead of giving to the French people the credit which belongs to them. France is probably the only nation in the world which has made manual instruction compulsory in the whole of its primary education; the whole lot of it is of a disciplinary character.

4847. Is that object secured by working at mere exercises, or do they work out completed articles?—They generally work disciplinary exercises. I am not prepared to say whether they are done accurately or not.

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4848. Your experience is that the models interest the children more?—With one condition, and only one condition, that the disciplinary exercise is got in a model which you would get in a disciplinary exercise.

4849. Then what is the next point?—Later I came in contact with Sloyd and tried the pure Sloyd.

4850. You mean the Swedish Sloyd; your system is English Sloyd?—I venture to think that it is Sloyd to all intents and purposes, but I have managed to make a good many modifications in the Sloyd.

4851. In the Swedish Sloyd the object is to work out models?—Yes, but one advantage that the Sloyd presents educationally to any thinker is that instead of grading the models it grades up the tool manipulation, and that is the difference between an educational expression and the carpenter's aspect of it. A carpenter will always grade the difficulty of the thing produced, and an educationist always grades the difficulty of the doing.

4852. That is the fundamental principle of the Sloyd system, rather to look to the doing of the thing than to what is done?—Yes. Swedish Sloyd is unsuitable for two reasons, one the drawing. At first there was no drawing in the Swedish system. The strong point of the French system is drawing.

4853. You mean that in the French system nothing is made unless it is first drawn by the person who is going to make it?—Yes, the Swedish expression of models and exercises as they stand afford very poor drawing lessons, sometimes too difficult and sometimes too easy, but they never run in the same order of sequence. One does not find fault with the sequence of its exercises, but one is obliged to find fault with the sequence of its drawing. Many of the models are quite unsuitable to the boys. Our London boys say: "I won't make a spoon; I can purchase it for 1*d*."

4854. These are matters of detail. The first point is the question of principle. In your view any system of manual training ought to be built up in view of its connection with drawing?—I should like to put in as evidence, my book on drawing, from page 1 to page 9. I have there distinguished between the drawing of the technical workshop and the drawing of the manual room. ("Manual Instruction Drawing." S. Barter. Whittaker & Co. 1896.)

4855. I understand that in the Swedish system they have now introduced drawing, but possibly they have it in connection with a series of models that were originally arranged without any reference as to whether they are suitable exercises for drawing or not?—Yes.

4856. And your idea is that we should begin with making such things as are most easily drawn?—Yes. Here the boy for the first time actually makes his drawing, it becomes something real and living to him. If a boy's drawing is merely copied from the flat it is apt to be a very rude imitation of what has been done, but if a lad draws while a piece of bench-work is in hand, that drawing becomes of a different value in his mind, the wood is the concrete expression of the abstract, and the difficulty in all teaching is to try and get your teaching concrete. What has been the matter with all our teaching is that it has been abstract; if we could have found ways to make that concrete we might have done more for our schools. If a boy stands face to face with a drawing and accepts it as a concrete thing, that boy is learning.

4857. Then the drawing you wish to have taught is by plan and elevation?—Or it may be freehand drawing.

4858. As regards teachers, you have some observations to make?—May I mention one thing in connection with the drawing first, we sub-divide in this country our bench work from our drawing, we let a teacher whose mind is not in harmony with the teacher in the workroom make the drawing and pass

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it over to the benchside, then the very thing we are trying to do with drawing, make it concrete, is destroyed. You cannot expect a man teaching sixty children drawing to give it the individual attention to make it valuable, and the result is confusion both in the primary school and at the bench-work. If the drawing is to have any real value then the drawing must come from one, and the same instructor, and it must have a simultaneous operation with the bench-work.

4859. Let us take it that there is a school session of three hours for practical work, we found in Birmingham the first half hour given to drawing, would that fall in with your view?—Yes, if it came from the same instructor, but it is not the same all over the country.

4860. Professor FITZGERALD.—They come with their drawings ready made, but spend some time in the workshops setting out their work?—I see.

4861. CHAIRMAN.—Is there not perfect harmony between the two?—There cannot be: you might just as well give to the children a printed card with the drawing on it, and say "Take that down to the workshop and mark out your work from it. A part of the drawing may be done, and a piece of the bench-work, and a piece more of the drawing, and a piece of the bench-work. It is too much; your children in standard 5 cannot begin and draw plan and elevation at once, as the drawing is done so the piece of wood should be cut up line by line.

4862. Judge SHAW.—In all the schools organized under you the drawing and woodwork is done simultaneously under the same instructor?—Yes.

4863. CHAIRMAN.—But then drawing is also taught in the other schools?—Yes; but the fact of teaching drawing only once a week like that to the children is giving a big impetus to the other drawing.

4864. Now as to the teachers?—In London we have had two sorts of men to teach, the elementary teacher from the school, and the artizan who has had no previous experience in teaching. The artizans we get for the work are generally artizans who hold certain certificates from the City and Guilds of London Institute, we don't confine ourselves to carpenters; he may have been a cabinetmaker or a pattern maker, or a wood carver.

4865. Professor FITZGERALD.—Do you make any special requirements for a person to be eligible?—He must hold a certificate for plane and solid geometry of the Science and Art Department, and he must hold freehand and model, and one or two other drawing certificates, such as machine or building construction, or naval construction.

4866. CHAIRMAN.—He must be able to draw. Is there any test of his capacity for teaching drawing?—None whatever.

4867. Professor FITZGERALD.—Would you enumerate the rest of the conditions for eligibility?—And he must go to the City and Guilds of London and get a qualification from them.

4868. Mr. STRUTHERS.—What is the D certificate?—It is the certificate granted in elementary drawing. It takes in freehand, model, and geometry, and used to take in perspective, and I think they have put in light and shade now.

4869. Professor FITZGERALD.—And the other condition is they must get a certificate from the City and Guilds of London—for what?—For whatever industry they may have been engaged in.

4870. They must have the City and Guilds of London Institute certificate in whatever industry they had previously taken, and those are all the conditions?—Yes. If he is a teacher he must get the City and Guilds of London certificate for woodwork, and that is the only certificate that I know that is given on the examination of the candidate; all the other certificates in manual work are given for going through a course which sometimes means much and sometimes means little, but the City and Guilds of London certificate is given for competence in drawing and bench-work. If you go to Sweden, in some of the courses you will find you get your certificate for going through a course, and they don't know how much a candidate may have done or how well he has done it.

4871. CHAIRMAN.—Then as regards the training of teachers for this work?—When we started in London our thought was to have centres in which we should put a teacher in charge of artizan assistants. We recognized the fact that in London the teacher from the time of life he picked up the tools, was deficient in manual dexterity. Suppose you were feeling a thing, our teachers could not feel whether a thing was round although they might be able to plane it up round. But if you ask a skilful man to put a ruler through his hands he will tell you the size of it, and he is generally right, within a fraction. That is a sort of feeling you cannot cultivate. You cannot teach any person to carve after twenty-two. They may do something. They may chip bits of wood off, but they cannot get the flow of the gouge. You must begin when you are a child. I will get you another illustration—that is, the marqueterie-cutter who so shines in France. If you don't begin that when you are five or six years of age you don't learn it. To show how important it is to begin young with manual operations. You have seen the inlaying there is in cabinet-work. The marqueterie-cutter has a drawing with holes in it; he puts it over the work on which it is to be inlaid and checks it over. He has a saw that is finer than the hair-spring of a watch. He has to turn the veneer against the saw, and perhaps that is sawed into a thousand pieces. Afterwards it is put into hot sand, and the whole pattern is placed together. Each piece has to fit dead from the saw, and that is a thing you cannot learn late in life, and it is not a thing you get mechanically, because the men who do it can only work a few hours at a time. The boys who are taught it are only allowed to work a short time, and then they have to work at other things, showing that practice only makes perfect when interspersed with other occupations. We thought if we put our artizan with the teacher that the teacher would improve his personal skill, and the artizan would learn to teach from the teacher, with a view of afterwards promoting our artizan to become a teacher, should he show teaching power and have the necessary educational qualifications. What happened was this—we could not secure enough elementary teachers to take up the work, and we were driven to promote our assistants, who were artizans, to the post of instructor; and in many cases, where they were educated and have been through a good strong course under the Science and Art Department, and were not too old, we have had some splendid work; on the other side, we have had some of our artizans who could not adapt themselves at all to the new condition of things, and they have turned out signal failures. Some of our teachers have proved very successful, and some of them have proved failures, so I am not prejudiced in favour of either artizan or teacher. You may get it out of both men.

4872. You consider that a certain amount of freedom should be allowed to the teacher?—Yes.

4873. To what extent is a scheme, for instance, desirable?—Yes, a scheme is desirable, but not a syllabus.

4874. How do you distinguish between a scheme and a syllabus?—A scheme would be the expression of a principle.

4875. Would a syllabus be more detailed?—Yes, a syllabus would be a particular exercise to be done within a given time, and that would destroy the individuality of the teaching, and the children are individual; no two boys will go at the same pace, or are alike mentally or physically, and it is not fair to expect as much of one boy as you will get from another boy.

4876. I think you told us at the Clapham school that the children of a particular class divided themselves naturally into three or four groups in the

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order of proficiency?—Yes; and if you have a syllabus you are apt to cramp the teacher until he drives the boy he ought not to drive, to do so much work in a given period, and neglects to give a brighter boy the opportunity to go forward.

4877. Professor FITZGERALD.—You think it of great importance that the boys should not all be forced to go at the same rate?—That is an educational principle that I think is adopted all through Sweden and Denmark; they all agree on that point, and it bears out our own experience in London.

4878. Judge SHAW.—Is it not different in France?—The French people have never published the scheme, but I have seen their early work, and know they do it in the whole of their primary schools, and claim for it that their artizan scholar has gone up tremendously.

4879. I understood it was very hide-bound and drastic?—I believe it is.

4880. Professor FITZGERALD.—In training teachers do you think it essential that they should be trained in teaching?—They come to me and get a series of lectures, and before any man is allowed to take charge of a centre he is sent round perhaps to work with such a centre as you saw, with one man for a day or two, and then with another man, and another man, and then he will come to these lectures in which the material aspect of the work is taken and the technical aspect.

4881. You think it is desirable the teachers should see the classes being taught while they are in training?—Quite, I don't think you can train a teacher without giving him an opportunity of seeing a class. Suppose I say—"This is the way I would teach such an exercise," then the teacher will go and teach that in the class himself. We don't allow our young men to make any alteration in the scheme until they have been with us a given time, and then they have to submit the first alteration to me, and if it is a change I approve of, they go on

4882. CHAIRMAN.—And you find from time to time they make useful suggestions?—Yes.

4883. At what age do you think boys ought to be put to this kind of work?—They should begin at the age with which children start about us in standard 5, somewhere about ten to eleven.

4884. Have you any knowledge of methods that are sometimes used as preparatory to manual instruction, understanding by manual instruction this working in wood that begins when the boys are about ten or eleven?—Yes, I have seen, of course, the work under the Board, and know a good deal about that work.

4885. That kind of preparatory work goes on in the Board schools?—Yes.

4886. I believe there is no grant for it?—No.

4887. But the work is done: is it insisted on by the Board?—No, but it is taken up largely by our teachers.

4888. Is it a useful preparation for this manual training?—It depends on who teaches it, there is a teacher of cardboard and clay modelling.

4889. You have no wirework?—No.

4890. Suppose these exercises to be taught on good lines by competent teachers, are they not useful as a preparation for the more formal work of the higher standards?—To my mind some of them are, and some are not. I don't think the flat paperwork has a tenth of the value which cardboard has, but cardboard and the feeling you get in modelling clay is in front of all other forms of exercise.

4891. You think the flat paper-folding is not educational?—I don't think the effect is so good as if they built up their flat paper into more solid forms.

4892. The way they work in Birmingham struck me as being highly educational; there they work from diagrams on the board?—It may be done in standards 1 and 2, I have never taught those standards.

4893. Do you not think that would be a useful educational exercise?—I do.

4894. And a good preparation for manual work based on drawing?—Yes. I have never taught standards 1, 2, and 3, therefore I cannot tell what the capacity of the children is.

4895. I merely wish to have your view of the educational tendency of these occupations?—I find that the boys who have done cardboard work do our woodwork better. But I will tell you what ought to run side by side with it, that is clay, I am certain nothing leads to such fine muscular perception as clay. Most of the clay work is done with finger and thumb, and there is no appendage to the hand doing work; and further when the finger and thumb are doing the operation you cannot see what is going on under the finger and thumb and therefore you have to trust almost entirely to feeling, and that is as valuable a factor in training the hand, as using a saw.

4896. There are much greater facilities for remedying mistakes in clay-modelling than in wood?—Yes, but children make mistakes in wood just as in clay, and the child does not try to make mistakes, further it is useful for a child to make mistakes, let him see that he made a mistake, don't encourage him to continue to make mistakes, but if he never makes a mistake he never learns to remedy his fault. And no child ever did anything perfect yet.

4897. It is useful for a child to find out mistakes for himself?—Yes.

4898. How long do you think the lessons in woodwork should last?—They ought not to be less than two hours considering the teacher has to take drawing, which will probably be from three-quarters of an hour to one hour; boys ought not to get less than one and a half hours' bench work, and then if it is taught as it should be taught, the teacher before going to use a saw will give the boy the mechanics that surround the construction of the saw, elementary at first but leading on to the more difficult side, and they ought to be explained while the boy is using the tool.

4899. I think we may take it at two and a half hours, including drawing. You have a very interesting chapter in your book, one on the tools and another on the wood required as material. As to the equipment of the school: these things cost a good deal of money?—They do.

4900. First, in fitting up the school?—Yes.

4901. And secondly in maintaining the school?—I am saying this rather gingerly; don't be buying tools at educational supply associations, you will get second rate articles, buy really tried London made goods; well, not made in London, but they used to be made in London; they make two classes of goods in Sheffield and Birmingham, they make London goods and town goods, one is a little dearer than the other, I would suggest Sheffield, and the tools that the handicraftsman uses, except in the case of the tenon saw, the hand saw, and the jack plane; it will cost about £35 to equip a class of twenty.

4902. But that will equip any number of classes of twenty?—Yes.

4903. I understand that in the working of your system a room accommodates twenty?—Twenty or forty.

4904. And ten sets of twenty each can be accommodated in that room during the week?—That is it.

4905. So the room provides for 200, and the £25 spent on the equipment is really the equipment for 200. For how many years will it last?—Some of it at least will last thirty or forty years some will only last three or four; for instance, a plane is better, if it is taken care of, when it is ten years old than when it is bought new, but you want a new cutting iron to fit it.

4906. You have an interesting chapter on the sharpening of tools; do you teach the children to sharpen the tools themselves?—Yes.

4907. In some towns they have a man to go round to sharpen tools for the children?—All that sort of thing going on is likely to destroy a boy's self-reliance, a boy should always do everything he possibly can for himself.

4908. Well, he cannot make the tools?—That is true, and he cannot grow timber himself.

4909. But he can be taught to sharpen tools?—They ought to begin to grind and sharpen the tools when they begin their instruction.

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4910. Professor Fitzgerald.—And as a matter of fact they do it?—Yes; I don't say they will do it well.

4911. They do it well enough to be able to go on with their work?—Yes.

4912. Chairman.—Do you find that you meet with many accidents?—No; we had a number of cuts with the Sloyd knife, because we had a number of manipulations, one against the chest, and another a cut of the thumb; next to a razor no tool is so difficult to sharpen as the knife, that is one of the objections I have to it.

4913. Then comes the maintenance of the school. A set of tools will cost £25?—Yes; and the depreciation will be from five to seven per cent.

4914. That is a couple of pounds a year, and that will provide for the instruction of 200 children?—Yes; a double centre is cheaper where you can get one established. Suppose you have a number of contributory schools, and a man has a standard of 60 or 80 boys, and you have room for 20, you break his class a great many times in the week if he sends the whole, but if you have a large centre of 40 you don't break up his school so much, you get an instructor at work and an assistant, and you can vary your two types of men. And further, if you are rearing up a number of instructors, you can train a young man to go somewhere else some day and carry out a similar work. And again, it does not cost so much in the general equipment, if it costs £25 for 200 boys, it does not cost £50 for 400, you save a few pounds in the material.

4915. What does the wood cost?—I never totalled it up; we use a lot of expensive wood, walnut and so on.

4916. Could you form an idea of the cost of the wood for 200 boys?—£20; I believe wood is cheaper in Ireland than in England; no, it does not cost more here than £15.

4917. We have in your book a good deal of detailed information about those points you are speaking of. The next point to be considered is the organization and superintendence of the work?—I think you will find that you will need a chief to direct it, a man who can take in hand the training of a number of men to train other people.

4918. That is, corresponding to your position?—Yes, there is myself in London, I have two men in the north and two men in the south, assistants, one is assistant to me and the other one is an assistant to that man. These men going about all over the place saves friction, we can centralise the work, and it saves cost.

4919. That provides for about 30,000 pupils?—We have more now, nearer 35,000 now.

4920. Professor Fitzgerald.—When starting the thing in the first instance, did you find it required much persuasion of the teachers?—Oh, no, the difficulty always has been with the older men, the mass of the younger generation of men were quite willing to come forward and learn, and we in London, for getting our teachers amongst the artizans, stood a chance that probably you in Ireland will not have. We in London have the Polytechnics and have the effect of the Science and Art Department, and the inducement of high wages and short hours has gathered in London a lot of young men who are willing to go to the Polytechnics and study, and those have made our best instructors from that standpoint. Whether you will be able to get such men I don't know.

4921 Have the trades ever objected to the teaching of boys who were not in a trade?—Oh, no.

4922. Chairman.—They understand it is not trade teaching?—Oh, that is quite understood.

4933. You mentioned that it was not so in the beginning?—Yes, there was a good deal of misunderstanding, there are some people who call it carpentry now, and whenever I see that, I draw my pen through it and write "manual training."

4923a. I am glad to hear that; the distinction is of vital importance. It is fully understood now?—It is.

4924. Professor Fitzgerald.—When it is started in a new town it will be necessary to persuade the head teachers of the schools, was there much difficulty in that in London?—Yes.

4925. Was it your business to go round?—It is always my business to persuade a man and ask him to come with me and see a class at work, and your organizer, if you appoint such a man, should be a man who could go round and get the teachers of each locality together and show them the advantage that the teachers would be likely to get from it.

4926. You don't think it ought to be forced on a locality from outside?—Some teachers are very strong Trades Unionists. Trades Unionism may have a frightful side, just as bad as tyranny.

4927. I mean, should the Education Department force this upon a locality?—Yes, I am afraid until you do force it you will find a number of teachers in utter ignorance of the benefit it is likely to be to them and refusing to act upon it, that is the attitude our Board had to take up at one period.

4928. Judge Shaw.—There is one thing I was interested in, that is I have heard employers of labour in Ireland—in Belfast—say that they prefer to get a boy fresh and untrained to his apprenticeship without any previous instruction. You said, as I understood you, at present a boy commences his apprenticeship too late to acquire the complete skill and perfect workmanship he ought to have?—Yes. Dr. Crichton Browne, it is reported, states that all muscular perception in training must take place between the ages of four and nineteen, and that it is impossible after nineteen to train it, I assume that after nineteen, if the hand has never been used at all, it would be impossible then to begin to use it

4929. What I meant is, that if a boy goes to any trade that requires a highly sensitive organization, either in touch or eye, do you mean that at thirteen or fourteen he is too late?—He is beginning too late, the muscles should be trained before that. If you ask a violin player—with him it is all touch, or ask a pianoforte player, they will all tell you, you cannot begin too soon.

4930. I am not speaking of such highly trained organizations as those, but an ordinary tradesman, such as a carpenter, blacksmith, joiner, or pattern-maker?—I can understand this, employers have said the same thing to me about instruction every day. A carpenter without any scientific information how to teach, teaches, and that will account for what you are stating. A carpenter that I know is giving instruction in the evening in a class in the North of London; he is a very skilful craftsman but a bad teacher, and instead of showing his fine skill to demonstrate to the child how to do a thing, he picks up the tool and with a few deft strokes does for the child what the child should do for himself. A craftsman never realises perception, order, or sequence, and the effect on the child is to injure his skill and mind.

4931. Chairman.—He is looking to the thing to be done and not to the doing of it?—Yes, and his mind is out of order.

4932. Judge Shaw.—You mean that when an employer of labour says he prefers getting a boy untrained he means he prefers him untrained to being badly trained?—Yes.

4933. And if a boy had been well trained it would be essential to the very best skill?—It is said in London that I am the best English carver in London, and I certainly have been a Sheraton designer for the last fifteen or twenty years. My father was a magnificent craftsman and my mother was a teacher, and I had the carver's tools put in my hands when I was not five years of age, and at sixteen I was carving and modelling under George Smith, at nineteen I worked the chimney-pieces at Eaton Hall, at twenty-two I took charge of a shop, at twenty-five I was a designer.

4934. The essential was, not only beginning at an early age but on right lines?—That is so.

4935. And unless the manual instruction was good manual instruction it would be better not given at all?—Quite so.

4936. There was another thing you mentioned

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about a teacher: where a teacher had the manual instruction in his own hands, you say he could not keep the machinery going?—Suppose a teacher teaches the three R's, and he also gives the manual instruction, I take it he has 100 boys to teach a week, and goes down every day at 3.30 to 5.30 to give such instruction; these planes and things get out of order and require constant supervision to know what is wanted doing to them, and your lessons want arranging in sequence, and the effect of asking a man suddenly to leave off, say, teaching geography at 3.30, and commence manual lessons, is, that the manual lessons suffer.

4937. The arrangements are not properly made, the tools are not in order and the materials properly arranged?—Yes, and the man has not time to do it.

4938. Do you think it essential for that purpose that there should be a special teacher?—Quite so.

4939. Captain SHAW.—Why does this particular teacher not begin at 10 o'clock in the morning?—You will find that every teacher likes the morning for his important work when the children are the brightest and best; if a school is very smart at drawing you will find that is taken in the morning; children in the two hours of the afternoon never do work as well as in the two hours in the morning.

4940. CHAIRMAN.—Especially with book work?—Especially with book work. Therefore, if it is left to their choice, they take in the later part of the day these other subjects.

4941. In London you take it in the morning?—Yes, and afternoon, too, so that we may use our centres fully.

4942. Judge SHAW.—I saw a teacher at a centre, yesterday, and understood him to say he had no special training in teaching before he commenced to teach; it was at the Alma School?—That is one of our men.

4943. I thought you said before you set them to teach they had to attend lectures and go through a special system of training in teaching?—This man you saw worked as an assistant under another instructor in a double centre. That was one part of the training he got. Of course some of our men have been taken straight from the bench side, because we wanted men and could not get them. The notion is to have two men working together, and then to promote the assistant as opportunity presents; and I am strongly of opinion that if you get the real clever artizan, and teach him how to teach, he makes the best instructor.

4944. This man said that when he commenced to teach he felt very awkward and embarrassed, but that, gradually, he worked into it?—That man you saw at Hazlerigge Road. I have not got a better man in London. That man was an artizan, and he came to the lectures, and the benefit of the lecture is, that they get lectured on what they have been doing in the day time. If they came to lecture after lecture and had not an opportunity of practising, it would be like a great many of us. We hear lectures, and, perhaps, remember some of them, but what we do for ourselves we never forget. It is better he should be practising to teach; we have to suffer at first. Your instructor won't be idle at first; it will be a matter of growth. In fact, I have many places in London that I know will get better and better, and the men will improve, but that is a matter of time.

4945. CHAIRMAN.—One point I wish to clear up—the comparison between the English Sloyd and the Swedish Sloyd. Calling your system English Sloyd, there are, I take it, two points of difference between it and the Swedish Sloyd: one, in reference to the tools; the other, in reference to the drawing; is that so?—Yes.

4946. Is this correct, in reference to the tools. The Swedish Sloyd begins with the use of the special knife; you avoid that?—Yes; I don't like the knife at all.

4947. You work with the ordinary tools of the ordinary workman, somewhat slightly modified in size?—One or two.

4948. Secondly, in the gradation of the Sloyd exercises the gradation is based rather upon the tools to be used than any other consideration?—Yes.

4949. That is not so with you?—Yes; I grade the tool manipulations.

4950. But not exclusively; you take drawing into account?—Oh, yes; I grade the drawing and tools together.

4951. But I understand from you, in the Swedish system they look rather exclusively to the tools?—Yes; in fact the system was constructed and worked for twenty years without any reference to drawing.

4952. But, as you have modified it, it is based on drawing exercises; rather based on the capacity of the child in reference to drawing?—Yes. Might I just explain why I should differ from the Sloyders about the knife. The Sloyder says it is the only tool with which a child can make a thing complete. That it is used in every house—that a child knows something about it—and carries it in his pocket; it is a tool with which you can do many an operation for yourself. I give all that to it, but it is a tool that only works approximately true, the most skilful hand in the world cannot make the knife work more than approximately accurate. To illustrate exactly what I mean a child is asked to make a long cut along a line. A child has not the strength, I could not do it, and it resolves itself into a series of little chopping cuts. But now follows the curse of the whole thing. Early in life the most difficult material that an artizan has got to deal with, glass paper, is given to the child. Did you ever see a carver with his long sweeping stroke attempt to put a piece of glass paper on it, and yet how beautifully crisp it is. And did anyone ever work with the same self-reliance. This thing, as soon as it has gone that far, is rubbed smooth with a piece of glass paper, and the Sloyder, if you challenge him, says "would you like this pen if it is not smooth." No, but it is to be the model first and the disciplinary effect last, and better get the true rough than a piece that is smooth but not true. I went into a centre the other day and there was a ruler. It was beautifully round, nice and straight. I put it on the drawing and it was three tenths less in diameter, and the teacher said "Yes, but I can never get that more accurate." That is his order of mind. "If it is, don't let him glass-paper the ruler, because it is a lie." Until the ruler is made larger the glass paper is a mistake.

4953. Captain SHAW.—Do you know what standard of perfection they reach at Nääs?—I don't. The best Sloyder I knew was Mr. Whillier. His models were mathematically correct, but if you take twenty Sloyd models and put them all in a row they are all beautifully smooth, and if you saw them as individual articles you would say each was nicely made, but you won't find two exactly alike out of 500.

4954. You are talking of Sloyd as practised in England?—Yes, I have taught a class of Sloyd myself

4955. CHAIRMAN.—Now we have got at the points of difference between Swedish and English Sloyds: do you not agree with me that the English Sloyd has just as good a right to be called Sloyd as the Swedish Sloyd?—Yes.

4956. Coming than to the points that are in common; in the first place, the object of the Swedish Sloyd is educational, is not that so also in the English?—Quite so.

4957. Depending upon that, the object of the Swedish Sloyd is to develop the powers of the children?—Yes.

4958. And to look to the process of doing a thing rather than to the thing actually done?—Yes.

4959. So far the two are in common. In the Swedish Sloyd great importance is attached to accuracy, and also in the English?—Yes.

4960. In the Swedish Sloyd the articles to be produced are graded?—Yes

4961. In reference to the same consideration, and so far again the two are in common. In the Swedish Sloyd division of labour is not admitted into the workshop?—Quite so.

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4962. Kindly explain how that works out?—What they mean by division of labour—from first to last the child makes the article.

4963. And perhaps makes even the drawing of the article?—Yes. But they say the subdivision of labour is a good thing. It is just the very thing that is required in rural districts. I have known men who have lived for a long time in a country of the world where they have no subdivision of labour, and the men and women have to do everything for themselves, grow their own wheat and articles, and make their own clothes; that is Russia. I want to point out the effect on the Russian peasant, the immorality and the degradation of the Russian peasant is simply horrible. They say it inculcates self-reliance; it does nothing of the sort. At the same time there should be no mental subdivision of the labour; the model should be the whole of the child's, no two boys should do the same thing. But the notion that prompted this Sloyd was that the men who live in Sweden, a primitive country, upon the hillsides, in the long winter evenings have nothing to do, and what led to the adoption of Sloyd was that the people used to do everything for themselves, but they began as they got in contact more with Denmark and Germany to purchase certain articles for themselves and ceased to utilise their long winter evenings, and there was a growing immorality in the towns, and that led thinkers to adopt some form of manual instruction.

4964. But there is no question involved as to whether division of labour is a good thing or a bad thing in the industries of a country: the Sloyd system is purely educational: it looks to the effect of the Sloyd work upon the training of the individual child; and the main idea of it in this respect is that better educational work can be done when each piece of work is to be done by one particular child?—Yes.

4965. Is not that carried to this extent that if a master has to teach the child how to do a thing, the master wishing to show how that thing is to be done, must show it upon another piece of wood, and not upon the wood that the child is working upon?—Yes.

4966. Is not that so in the English Sloyd?—Just the same thing.

4967. These are now the main points, of difference in the first place, and of agreement in the second, between English and Swedish Sloyd?—I think the great difference is; 1st, drawing; 2nd, the knife and glass paper; 3rd, the objection to fixing down any set of models for a district, but leaving the teacher perfectly free.

4968. In the Swedish system there must be an accurately graduated set of articles to be produced?—Yes.

4969. And that is so in the English system?—Yes.

4970. But you are in favour of allowing more freedom of choice?—Yes.

4971. Both kinds of Sloyd agree in this that each article produced is the work of one individual child?—Quite so.

4972. Captain Shaw.—Do you approve of mechanical assistance in the making of models?—I don't believe in any mechanical assistance at all. You will see, for instance, the shooting-board, the Sloyder uses it sometimes; a plane is more or less a mechanical assistance, for it is impossible for any average artizan to joint up several pieces of wood, $\frac{1}{4}$-inch thick, and put them together, for the result would be a plane without a shooting-board, that is impossible. And there are certain manipulations that are utterly impossible without the use of a shooting-board. I would say that any piece of timber which is a quarter of an inch should be shot in the shooting-board; but any piece of timber which was thicker should be shot in a vice. You must remember that in London at the work you saw, one is apt from the colour and showiness of the thing, to think there is a good deal of it: as a matter of fact, in the first year of the boys' work he does not do only one piece of inlay, and that is not done in the shooting-board at all. In the second year he gets probably one or two exercises, and that alone, and they are not compulsory, but it is impossible for any person to edge shoot accurately without a shooting-board.

4973. How long does it take to make such a complete model as a tray with a star?—Probably a boy would make it in four lessons.

4974. Is not that too long to keep a boy?—One boy will fatigue through it and another will not; the teacher has to select his model to suit his child. I am not wonderfully fond of that particular model. I don't think it is one of the best models myself.

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TWELFTH PUBLIC SITTING.—THURSDAY, MARCH 25, 1897,

AT 10 O'CLOCK A.M.,

At the Examination Hall, Victoria Embankment, London.

Present: His Grace the Most Rev. William J. Walsh, D.D., in the Chair; The Right Hon. C. T. Redington, M.A.; His Honour Judge Shaw, Q.C.; The Right Rev. Monsignor Molloy, D.D., D.Sc.; Rev. Henry Evans, D.D.; Rev. Hamilton Wilson, D.D.; Professor G. F. Fitzgerald, F.T.C.D.; Stanley Harrington, Esq., B.A.; W. R. J. Molloy, Esq.; Captain T. B. Shaw, and J. Struthers, Esq., B.A.;

with J. D. Daly, Esq., M.A., Secretary.

Mr. T. Rooper.

Mr. T. G. Rooper, H. M. Inspector of Schools, examined.

4975. Chairman.—You are one of Her Majesty's Inspectors of Schools?—Yes.

4976. Before going into the particular subject of our inquiry will you kindly give us in outline an account of the Inspectorate Department in England. I know it differs from ours. First, you have a senior Chief Inspector?—Yes, who superintends all the other Inspectors and the outside work of the Department.

4977. Under him there are a number of Chief Inspectors?—Yes.

4978. These I think are twelve in number?—Yes, the country is divided into so many districts.

4979. Two of the Chief Inspectors are specially set apart for the inspection of the Training Colleges?—Yes.

4980. And the other ten are in charge of the ten districts into which the country is divided, that is for England and Wales?—Yes.

4981. Not for Scotland?—Scotland is quite different.

4982. Scotland has a Department of its own. Next, there are ninety District Inspectors?—Something like that.

4983. That means that the country is divided into so many districts, over each of which there is an Inspector?—Yes.

4984. Over these District Inspectors there are the Chief Inspectors?—Yes, those are already named.

4985. There also are Sub-Inspectors under the District Inspectors?—Yes, 200, of two grades.

4935. How do these grades differ?—The higher grade is supposed to be able to undertake more responsible work than the second class.

4987. The reports are presented, I suppose, by the District Inspectors?—Yes, the District Inspector is entirely responsible for the report that goes out on any school in his district to the Department.

4988. He gets the material for that report from the Sub-Inspectors?—Partly from his own visits and partly from the Sub-Inspectors.

4989. Is he bound to visit each school frequently?—That will depend upon the size of the district, in some cases it will not be possible for the District Inspector to visit every school in the district every year, but he is bound to visit them all as often as he possibly can, it may be once in two years.

4990. Especially in the case of the smaller schools, that would be considered sufficient?—Yes.

4991. But the schools are more frequently visited by the Sub-Inspectors?—I think the District Inspector on the whole would feel that he knew the condition of all the schools in his district from personal inspection.

4992. Now what is the nature of the inspection; I understand there are two systems, one may be called the old system that is dying out, and the other is the new system that is coming in,—one based upon an examination of the pupils, the other based rather on inspection of the methods of teaching, is that so?—Yes, that is quite the case.

4993. Are both systems at present in operation to any extent?—Both systems; but I should say on the whole the newer system is superseding the older.

4994. On what does it depend whether the new system is introduced into a particular school or not?—If a school is not considered to have reached a fairly good state of efficiency, the school will be examined under the old system, but if the school has reached a fairly good state of efficiency it will then be dealt with under the new system.

4995. Then it is not merely a matter of time limit?—No, it is the efficiency of the school.

4996. What was the nature of the examination under the old system, how many children in the school were examined?—Under the old system all the children in the school were examined on a given day.

4997. Were they all examined in every subject?—No, by sample, a certain number were examined in one subject, and a certain number in another.

4998. But the samples were so taken that every child in the school was examined in something?—It amounted to that.

4999. And payments were made mainly on average attendance?—Yes, but the Inspector reported whether the school was rather better or rather worse, and the grant rose or fell according to his report.

5000. There was a fixed grant and also what may be called a merit grant?—That was changed, there was a fixed and a variable grant, the fixed being much larger. 12*s.* 6*d.* was the fixed grant, and 1*s.* 6*d.* added for special merit, then there were special grants for such things as discipline, organization, that only varied 1*s.* or 1*s.* 5*d.* according to the estimate of the Inspector.

5002. But there was an older system in which payments were made on the individual answering of the children?—Yes.

5003. When was that given up in England?—I don't remember the exact year.

5004. Some years ago?—Yes.

5005. The system of examination by sample was substituted for it?—Yes.

5005. And now there is another substitution going on which does away with the examination system and substitutes inspection of method?—Yes.

5007. Inspects the teachers rather than the pupils?—Well, the work of the scholars is carefully examined, the teachers preserve the exercise books, copy books, any examination papers that they set, and it is part of the duty of the Inspector to examine these and see that they are in good order.

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5008. On the result of the Inspector's report it will depend whether the school is to be kept on the list of State-aided schools or not?—Well, it is extremely seldom that any school would be struck off.

5009. A school will not be struck off for one unfavourable report?—No, certainly not.

5010. But the grant given to the school may be reduced?—Even then there must be a warning for a serious reduction.

5011. A school that has been receiving the extra grant for merit will not be cut down to the ordinary standard on one unfavourable report?—I scarcely know what rule may prevail on that particular point, whether supposing that a school passed from a very good condition to a very bad one indeed, whether in that case some reduction would not be made, I would hardly like to speak.

5012. At all events it very seldom happens that a school is cut down without a previous warning?—Yes.

5013. There is an appeal from the Inspector's decision in all these matters?—There is an appeal to the Chief Inspector of the district. Supposing any managers of schools are dissatisfied with the report of the District Inspector, they can appeal to the Chief Inspector.

5014. In England, all this affects the manager rather than the teacher, with you, the teacher receives a fixed salary, the amount depending on agreement between him and the manager?—Entirely, the Department has nothing to do with the arrangement of the salary of the teacher, that is a matter of arrangement between the managers and the teachers.

5015. With us in Ireland the money goes straight into the pockets of the teachers, with you the money is paid by the Department to the manager?—That is so.

5015. In England it is the manager that is affected by any cutting down of the grant; but he can appeal?—If he is dissatisfied with the result of the report.

5017. And he may even appeal to the senior Chief Inspector of England?—Yes.

5018. But these appeals, I take it, are not very frequent?—No.

5019. Owing to the fact that nothing serious is done without warning?—Such appeals happen from time to time.

5020. Suppose an appeal is made, how does the higher authority interfere; is any further inspection of the school made?—It is the business of the Chief Inspector to re-examine the school, or under the new system it would be to re-inspect.

5021. I suppose that under the new system the right of examination is retained?—Yes; but there would have to be a warning given that the school would be placed on the list of schools to be examined as distinguished from the schools to be inspected.

5022. I am speaking only of what might be done on one particular occasion, in case of an appeal. I see that in the Code for the present year it is stated that every child in the school is still liable to examination?—Yes, no doubt.

5023. But a general examination of the school would not be held?—No.

5024. I don't know whether it would be a fair question to ask you whether you think the new system an improvement on the old one?—Certainly, I am very much in favour of the new system.

5025. You think it is better as regards getting work done by the teachers?—It seems to me more effective in every way. I think it is possible for an inspector to watch the progress of the schools better than before, and the new system has the effect of securing something like uniform work throughout the school year.

5025. Even in the new system there is, in a certain sense, payment by results, that is, the higher grant is paid when the work of the school is better done?—Yes.

5027. How many days did the inspector spend in the school under the old system, conducting examinations?—It would depend on the size of the staff; in some districts an inspector might have two or three assistants, in others he would be working with one.

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5028. In that older system was there much time left for chance visits—surprise visits?—Not so much; it could be done, but it required a certain amount of compressing the other work.

5029. Is there more time now for visits of that sort?—Yes, far more time.

5030. Of course there would be still much more time than there was on the original system when you had an individual examination of every child in every subject, which is the system still prevailing in Ireland?—Yes.

5031. Judge SHAW.—That individual examination was a yearly examination?—Yes, an annual examination.

5032. CHAIRMAN.—Thanks: it is important for us to have this general information as to the English system of inspection. Now, in reference to the special subject of our inquiry, you are in a position to speak from actual experience of the working of systems of practical and manual instruction in the schools?—Yes.

5033. And what impression have you formed as the result of your experience, as to the advantages of these systems? Perhaps you would wish to separate the subjects into different sections? Shall we take drawing first?—Personally I have very little to do with drawing, because the Education Department, or rather that branch of it to which I belong, has nothing to do with drawing; therefore it would be better to put that on one side.

5034. Have you any experience of the kindergarten system and kindergarten occupations?—Yes, there is no question about the value of the kindergarten occupations for the younger children, they have been introduced practically in all infant schools in England and especially in the large towns. I should say the kindergarten occupations have been frequently highly developed, and I find that all the teachers and managers and inspectors are amply satisfied with the results. I have never come across any teacher in any infant schools who, having once adopted the kindergarten occupations, has any desire to go back to the time when there were no such occupations, and when the whole time was spent over reading, writing, and arithmetic.

5035. I think we were told that in England kindergarten work is done only in infant departments?—Yes, but there has been some extension of late years in standards 1 and 2, some extension of the kindergarten occupations.

5036. Have you any experience of rural schools?—Yes, all kinds.

5037. In what district of England?—I have worked for many years in the north of England, five years in Northumberland and thirteen in Bradford. At present I am working in the Southampton district.

5038. Then you have experience both of town and country schools in those districts; what is the ordinary size of the country schools?—It varies very much, even in quiet country districts you may have comparatively large schools.

5039. What do you consider a small school in a country district?—I look upon any school as small where the average attendance is between forty and sixty.

5040. Have you many schools below sixty in England, in the country districts?—I have very few, but there are some.

5041. In a school below sixty how many teachers are there, as a rule?—Always one head teacher, and if the managers can afford it there is a pupil teacher, generally a monitor. But it is most desirable that officers of the department should encourage the appointment of a second adult teacher, although it is difficult to insist upon it.

5042. Even in schools below sixty you should wish to have more than one teacher?—Yes.

5043. In a school of that size, where there is only one teacher, can kindergarten be managed?—I think very well; in fact it is almost necessary there, because it is just these sort of manual occupations that the children can do with less supervision than some of the other subjects.

5044. In the town schools, as a rule, you have an infant department with a special teacher, and there is no difficulty there about kindergarten?—No.

5045. How are the materials provided for the kindergarten occupations, where do the funds come from?—They are provided, like copy-books, as part of the school apparatus, by the manager.

5046. That is, the manager gets money from the Department, pays his teacher, and provides the apparatus?—Yes. It is part of the duty of the manager to provide the necessary apparatus. That would include materials for needlework, kindergarten, copy-books, and, if necessary, reading-books.

5047. Of course the Board schools have, in addition to the money from the Treasury, the money from the rates?—Yes, that is so.

5048. And there are local subscriptions?—Yes; most voluntary schools are supported by subscriptions.

5049. The grants given by the Government, I take it, would not be sufficient to keep the schools in efficient working order?—No; the grant is considered to be a grant in aid.

5050. But in England that grant from the Education Department is largely supplemented by aid from other sources, more especially in the case of the Board schools?—Yes, and really to a considerable extent in voluntary schools.

5051. So much for the kindergarten. At the other end of the school-course, there is manual instruction, by which you in England understand working in wood and iron—what is your experience of that branch?—I have watched the growth of this almost from the beginning in this country. About 1880 to 1885 I spent a certain amount of time in visiting large towns on the Continent to see what was being done in the way of elementary education, and I was very much impressed by the amount of attention that was then being paid by educational authorities to the question of manual training, at that time in England we had done very little.

5052. What countries particularly?—Almost entirely in Germany, north and south. I did see some of the French schools, but not so much, because at that time more was being done in Germany than in France. Of late years a great deal has been done in France.

5053. Do you speak of the primary schools?—Principally the primary schools.

5054. Did you find such work developed in Germany?—Hardly that. I found the authorities were anxious to develop it—inspector after inspector, and educational authority after educational authority. I found them all saying "We have too much book work; what we want to do is to introduce something which will make education more practical."

5055. Had anything of that kind been introduced?—Yes; they were beginning. It was almost entirely a voluntary effort, but the educational authorities were co-operating.

5056. In what parts of Germany?—I visited Leipzig, Berlin, Vienna. I had no opportunity of visiting the rural districts.

5057. At all events, what went on in these towns would show the desire of the educational authorities to have this branch of work introduced?—I looked upon the German educational authorities as standing at the head in the matter of elementary education, and I was very much impressed when I found they were not satisfied with the state of elementary education as it was, but they wished this reform.

5058. Of what time are you now speaking?—Between 1880 and 1885.

5059. Have you visited Germany since?—Yes. There has been an immense increase since that time; what was then inchoate has now been developed very largely indeed.

5060. Probably that accounts for so many things being "made in Germany"?—Probably. Then, when I came back to my own district in Bradford I thought I would make an experiment, and talked to a certain number of teachers, and it ended in my starting, in a

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very humble way indeed, in connection with the Bradford School Board, a class for manual training in connection with one of the Board schools. It commenced with an evening class. The Board had no power to contribute any money towards it, but they were quite willing to lend me rooms and assist in every way, so, with the co-operation of the head teacher of the school, I was able to provide instruction through a joiner, and I took as my model some work I had seen done in the Leipzig manual training schools under Dr. Götze. I worked that for some years, and every year it seemed to me to improve and the interest in it grew.

5061. At the time you are now speaking of, was manual instruction recognised as a subject by the Education Department?—No, it was before that time. After that a good deal of attention was paid to it in other towns in the North of England, and about two or three years after this had been going on, having in the meanwhile started a class for teachers in schools, some of the teachers who had also been through a course of woodwork more or less on the lines of the Leipzig course visited Nääs in Sweden, and on their return started an association for teaching woodwork on the Swedish plan. Still no money could be paid in support of this work by the School Board, but the County Council assisted, so that a class was started for teachers and paid for largely by the County Council and by private subscriptions of the teachers. After that it was introduced into the Code, and now in Bradford there are a considerable number of centres where woodwork is taken up for boys.

5062. We have visited a number of centres in London. I suppose the centre system is worked out elsewhere on pretty much the same lines?—Yes, in most towns.

5063. A centre accommodates a class of about twenty at a time, and in that way is available for the instruction of 200, as each class of 20 attends there once a week, and there is time for ten such attendances?—Yes.

5064. You have, I suppose, universally throughout England, a system of two school attendances in the day?—Yes.

5065. Each attendance of two and a half or three hours?—Yes.

5066. There are ten of these in the week, and one of the ten is given to a special subject like manual instruction?—That is so.

5067. So the fact of the children going to a centre for this particular instruction does not break up the school organization as if they were going out for an hour in the middle of the day and coming back again?—Yes, that is so.

5068. How many hours in the day have you for school work in England?—They begin at nine and go on to twelve, begin again at two and go on to four-thirty.

5069. That is five and a half hours. Some part of the day is given to religious instruction?—From nine to a quarter to ten, or ten, is devoted, universally almost, to religious instruction.

5070. A whole hour?—There will be registration and that, but it varies from nine to a quarter to ten, or ten; there is besides religious service at the opening of school; they always open with a hymn.

5071. And close with a hymn?—Yes, or some religious ceremony.

5072. How many hours secular instruction have you in the day?—Four and three-quarters.

5073. That gives about three-quarters extra to what is compulsory with us. You find the system of manual instruction working well?—Yes, I find wherever it is taken up that all are satisfied.

5074. The English system is not exactly on the lines of the Swedish Sloyd system?—It varies very much indeed. I don't think there is any rule; generally speaking you would find the Sloyd system modified.

5075. Are the main lines of the Swedish Sloyd system adhered to?—In some centres; in some schools.

5076. May I ask you to state what you consider the fundamental principles of the Swedish Sloyd system to be?—To begin with, it is not purely industrial, the object of it is not an industrial object, it is not a system which is intended to produce apprentices to joinery or cabinet-making, it looks to the educational advantage, and I think also that there is something about the model which may be said to lead up to artistic perception, which is not I think as well dealt with in some other systems I know. The Swedish system deals with curved surfaces, they make a special feature of that, some of their models are perfectly simple, but at the same time some of the curved lines they have to deal with are in themselves lines of beauty.

5077. You take the word "model" in the Sloyd technical sense, meaning an article to be produced?—Yes.

5078. The Sloyd system is not content with working out mere exercises in wood?—Their point again is that too much time ought not to be spent in making joints which are of no immediate use, but that the child as soon as possible should learn to turn out a finished article.

5079. It is also a fundamental principle of theirs that the object turned out, the model, is to be the work of one individual child?—Yes.

5080. To what extent may the teacher assist?—The teacher is supposed to get the child to do the whole of the work, it is not intended that the teacher should do any of the work himself, but may point out defects, and inasmuch as the amount of wood required is very small, if a child makes a mistake it is very easy to commence anew.

5081. And if a teacher wishes to show it by demonstration he must give the demonstration on another piece of wood?—He is nearly always able to show where the child is wrong, and say, for instance, "this is not smooth."

5082. But if it is something the teacher has to do, he is not allowed to perform the operation on the piece of wood that the child has?—No, he should not take that out of the child's hands.

5083. Does the Swedish system make a point of having everything drawn by the child before it is made?—Yes, everything must be drawn to scale, and the child works from it.

5084. In England you attach great importance to that point?—Yes.

5085. I believe it was rather an afterthought in the Swedish system?—Yes, when they first began I don't think they attached so much importance to drawing, but they do now. In the classes at Southampton, which are pretty nearly modelled on the Swedish system, the boys all work from plans.

5086. I suppose in the gradation of the models attention should be paid to that particular point?—Yes, immense pains have been taken over the gradation; I suppose now the Swedish authorities have been at work for thirty years constantly elaborating and improving the models, and I think the gradation is probably the most important part.

5087. In the first place their gradation proceeded irrespective of this point about drawing?—In the early stages, no doubt.

5088. Have they changed the models, or the order of the models, since attention began to be paid to drawing?—I don't think that was necessary; drawing was a point omitted and unwisely omitted.

5089. You don't think the introduction of the system of working from drawings rendered necessary a re-arrangement of the order of gradation in the models?—No.

5090. You are satisfied with the Swedish gradation as it is?—Yes, I see nothing to equal it.

5091. But you have no objection to any set of models if arranged on proper principles?—No.

5092. Would you leave it to the individual teacher to make out his own set of models?—I should think it would be wiser he should submit it to some committee, but I should leave it to the individual as far as possible.

5093. Those then are the points that seem in common between the two systems, the Swedish and

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the English. On the other hand there are some points of difference, one affects the question of tools; in the English system the tools used are the ordinary tools of the workshop?—Yes.

5094. That is not so in Sweden?—The Swedish have certain tools which are not the same as the English.

5095. The foundation of the tool system in Sweden is the knife?—Yes, that I think is a very important point. If you are not thinking about carpentry alone but general training, it is extremely important to learn to use the knife. Suppose a boy takes to gardening he will very soon have to deal with grafting; unless a boy has learned the use of a knife he will find it extremely difficult to take up an exercise like that, where you have two or three different kinds of grafting all depending on the neat use of the knife

5096. The Sloyd knife?—There is no difference; an ordinary knife would do the work of the Sloyd knife.

5097. MR. STRUTHERS—There is no Sloyd knife proper?—No, it is the ordinary knife of the country, it is not like the knife used by the Swiss carvers. you can do the Sloyd exercises quite as well with an English pocket-knife of a good type.

5098. CHAIRMAN.—Do you think there is anything in the objection that the knife is a difficult tool to sharpen, so that if children are to be taught to sharpen the tools they use, it is a bad thing to use the Sloyd knife?—I think that is pedantic. I don't think it is necessary they should begin to learn to sharpen the tools at first; I always make it a point of teaching the boys to sharpen the tools after they had learned the use of them, and not the other way.

5099. Does the use of the knife tire their hands?—No, I think not, because you can cut away very little at a time.

5100. Boys are rather fond of using knives?—It is their only tool for most boys.

5101. Do you find there is a danger of cutting their fingers?—We have not found much trouble with cut fingers, less than I would have expected

5102. Now, to pass on to the next point. Between the kindergarten at the lower end of the course and the woodwork at the upper end, there is an intermediate series of occupations, we found them spoken of in Birmingham as hand and eye training: of course one may include the Sloyd system under the general term of hand and eye training. but taking hand and eye training as distinguished from working in wood and iron, there are special exercises for this hand and eye training in English schools?—Yes, I think one of the most interesting is clay modelling; there are a considerable number of other courses.

5103. Kindly tell us what they are?—First, cardboard modelling, brush-drawing; then there is paper-folding of various types.

5104. Have you experience of any system of working in wire?—I have seen it in Birmingham, where they have wire-working.

5105. We found them also building up little constructions with tiny wooden bricks?—Yes, as an extension of kindergarten; in fact many of the kindergarten exercises can be made more difficult and utilised for the junior children.

5106. Especially when they are coupled with a system of working from diagrams on the blackboard?—Yes.

5107. Kindly give us your estimate of the value of these various occupations?—I can hardly say that I am competent to give an estimate. I don't think that I feel able to say which is the better course; they seem all in their own way to fulfil the conditions that we require; they all form a most valuable introduction to advanced work. I think myself that cardboard modelling is extremely valuable; it teaches the children accuracy of measurement and accuracy in cutting-out.

5108. Accuracy, I take it, is one of the main objects to be aimed at: you must in this cardboard modelling be able to measure very accurately and cut very true, and you must teach the children the importance of accuracy?—Yes, if a child cut out a square and it is a millimetre wrong the eye shows it at once. Then I think clay modelling is extremely valuable, we have a very good course in England, under the London School Board, perhaps the very best In Leipzig there is a very good course of clay modelling also.

5109. Does that exist in elementary schools in Germany?—Yes, it is intended to be worked in along with the other manual training. I have only had books sent to me.

5110. In what does clay modelling consist, as worked in the London schools?—It is a course largely worked out by Mr. Vaughan, who is one of the Inspectors under the London Board.

5111. You approve of the system?—Very much indeed, I think it is the very best I have seen.

5112. Suppose the children are to be taught the importance of cleanliness, is working in clay a good way to set about it?—We want something tending the other way in these days, to teach children when there is dirty work that has to be done, not to shrink from it. There is some danger if a girl comes to learn cooking that she will say she would rather not wash up afterwards.

5113. You can give them a lesson in cleanliness: when their hands get all covered with clay you can insist on their washing them?—You must take care that the clay is not scattered about the place, and they must have a working apron as for cooking, and they must wash their hands afterwards, but the clay that is used now is hardly to be called dirt, they have classes that are extremely clean in working.

5114. Perhaps as Mr. Vaughan is coming to give us the details it is sufficient to know from you that you consider the system works well. You think these things are decidedly useful?—Yes, they all lead up to what we want.

5115. How do they affect the general work of the school?—The teachers, wherever they are introduced, say the scholars are intellectually sharpened by the introduction of this work.

5116. The teachers do not consider that the time that is taken away from purely book-work is thrown away?—No, provided that a certain amount of detail in certain subjects is reduced. Of course you may teach a subject like geography in such a way that you communicate certain general and important truths, or you may go very deeply into detail, as for instance, making a child learn the name of every tributary of the river Danube, it just depends on how much detail you require. If you stick to general principles and omit some of the details, which have hitherto been considered necessary, you have time for manual training.

5117. And educationally you consider it is not much loss to throw away some of those details?—No.

5118. How is geography taught in England, how do you begin, is it with the two hemispheres, or with the school-room?—I think the schoolroom; we are endeavouring to carry out the ideas of the Royal Geographical Society which has given us valuable information in teaching geography.

5119. That requires a certain power of drawing on the part of the teacher; he must be able to draw a plan of the actual school on the blackboard?—Yes.

5120. I suppose the children are taught to copy that?—Yes

5121. Have you atlases published in England which begin in this way, at what I should call the right end of the subject?—I think so.

5122. I have seen some in Germany, where they begin with a model plan of a schoolroom?—I think we generally have that hanging up in the school.

5123. The idea is to begin at that end, and then work on to the other?—Yes, to begin with the school and the locality.

5124. And you find that that enables the children to grasp the idea of a map much better?—Certainly.

5125. Was there a prejudice amongst the teachers against the introduction of manual and practical work when it was brought in?—That depended very much on the encouragement they received; in the Bradford district the whole thing was introduced by the teachers themselves, it was really a teachers' movement.

5126. How were they instructed in it?—To begin with, I started classes myself for any teachers who cared to join, and, as far as I was concerned, I was only dealing with fifteen or sixteen.

5127. They must have been teachers of a specially good class, specially intelligent?—I think that is true; but we had teachers of that type in numbers in the North.

5128. I am afraid that the ordinary teacher would rather have a prejudice against the introduction of anything but book-work; many teachers seem to think that education consists in teaching things out of books?—It would rather depend upon whether a teacher felt that he had no time to introduce this other work, that so much was expected in the way of book-work that he had no leisure either to learn or to teach anything more, but I think most of the teachers themselves feel this sort of work is desirable.

5129. Have you any experience of a class of teachers who began by objecting to this system or disliking it, but who came afterwards to form a different view of the case?—All those I was working with in the North undoubtedly seemed to take to the idea very readily.

5130. At present do you know what view is generally taken by the teachers, as far as you have to do with them?—My experience is, that all the teachers that I come across appreciate it.

5131. Judge SHAW.—Were your teachers trained by an artizan?—Yes, as far as relates to the first classes I started, the teachers were taught entirely by artizans. After that, when they took the matter up for themselves, they preferred the Sloyd system. My system was more or less the Leipzig system.

5132. But the artizans give them only a certain amount of manual dexterity?—Yes.

5133. CHAIRMAN.—Some specially intelligent artizans might grasp the educational view of the case?—I think what the teachers made under the guidance of the artizan was furniture.

5134. Judge SHAW.—If you had a number of intelligent teachers who wished to introduce this manual instruction into a school, do you think the instruction of these teachers by an artizan would be sufficient?—I should myself prefer that the teachers should go through some course like that at Leipzig, I think if you learn from an artizan you really learn a trade rather than an educational course.

5135. But then you must learn whatever way you can, introducing it for the first time?—That is how we began, but when the teachers themselves took it up, and about 100 joined a class, they engaged a Swedish teacher, a fully trained teacher from Nääs.

5136. CHAIRMAN.—You do not regard this practical training as a thing to be distinguished from intellectual training?—No, I think that is an extremely important point; it is really not what I call an industrial question, it bears on the intellectual training.

5137. You consider that the intellectual training would be only one-sided if this practical work was left out of the school: so it is an integral part of intellectual training, and not an appendix or excrescence?—That is what I feel.

5138. How do you distinguish between manual training and technical training?—Technical training is training for a special purpose, it is training for some particular trade or industry, and the sort of manual teaching we want in schools will be something which will not be adapted to a particular trade, but will be equally useful to a boy after leaving school whatever trade he takes up; his mind will be improved generally, and not merely his hand taught a particular knack or trick.

5139. Do you put that point as far as this, that the boy is prepared not only for whatever trade he may take up, but for whatever career in life he may enter upon?—He will be more useful whatever he takes up; of course you may easily take a boy of twelve, and make him quite expert as a carpenter, but it would not necessarily follow that you had given him general manual dexterity, it would not follow for instance that if he became a gardener he would be any better for his work as a joiner, or if he became a baker or clockmaker.

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5140. It is sometimes said that in the present system of highly developed division of labour, general versatility is no longer of such importance as it was. Perhaps I might put it to you this way. I visited a large factory near Birmingham the other day, the Cycles Component Factory. We discovered there that there were 2,000 different pieces that had to be put together to make a modern bicycle, and we found men working in all parts of the factory making these various portions of the bicycle. Now, as a machine may be invented some day that will throw a lot of these men out of work, is it not of importance that they should have some versatility, so that they can turn to something else when their own particular branch of industry is gone?—I think that point is not sufficiently insisted upon. If you look to the Charity Organisation Society's Reports, there are cases where boys or young men have been working for ten years from eighteen to twenty-eight at some extremely simple process—the case I have in my mind is the case of a man who was folding paper round parcels of black-lead. A machine was invented to do that work, and the man was displaced; he had nothing to fall back upon, and he practically became dependent, and never succeeded in getting his feet again upon the industrial ladder. I think if you had manual training in elementary schools, such as is now being introduced, the sort of versatility that will arise from it will make it easier for a labourer who is displaced by machinery or anything else to turn his hand to some other employment.

5141. One of the teachers at Bradford, I believe, considered a boy fit to turn to stone-cutting after doing woodwork in the school?—That was at Portland, and the teacher had moved down from Bradford to the Isle of Portland, and I asked him did he find Sloyd useful in a district where there was no wood-cutting, only stone, and his answer was instructive; the manager of one of the schools who was the owner of a quarry said he wanted a boy to work in the quarries, and selected a boy. The master said "I wish you joy of your bargain." The owner of the quarry worked with the boy for a short time, and came back after a few weeks and said, "this boy is no good, but how did you know it." "I can tell you," said the master, "because we have been working in wood, and I know that he has very small gifts." The quarry-master said, "could you recommend a boy that would be of use." "Oh, I can do that in a moment," and he supplied him with a boy who proved to be all he wanted, and then it was that the owner of the quarry said, "I always know that an elementary school was a place I could go to for a clerk, but it is something new to me to know that a school can be a training ground for practical work." Mr. Edwards, the master of the school, told me the story, and I think it is very instructive.

5142. Perhaps we could get from you an account of the introduction of this manual training into some of the voluntary schools: the evidence up to this has been from Board schools, you are one of the first of Her Majesty's Inspectors who has come before us, and your experience covers both classes of schools. Has this branch of school work been introduced into voluntary schools?—In Bradford it was introduced by Canon Simpson into St. Mary's Roman Catholic School. There were amongst his scholars some Irish boys, and some of the very poorest in the town, and he told me he thought it had one very striking effect with these extremely poor Irish boys, it had raised their self-respect; many of them at first seemed to believe that it was hopeless for them to expect to rise on the industrial ladder, but after they had learned what they could do with their hands and came to compare their work, and saw that they could do as good or better work than the other boys in the town, it gave them self-confidence, and the social effect of it in that respect seemed to strike Canon Simpson very much, and I thought the evidence most interesting myself.

5143. I suppose boys of that class would come to see the advantage of school work much more readily when they are not confined to books?—No doubt, and the parents appreciate it.

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5144. They are intelligent enough to see that a great part of what they learn out of books is really useless?—The parents who at first doubted whether anything of the kind could be done, after a year or two became very enthusiastic indeed, and were extremely anxious that the system of manual training should be extended, and it was largely owing to the desire of the parents that the School Board took the matter up when they had the opportunity.

5145. You have not told us anything of elementary science teaching in schools?—I think that there can be hardly any doubt that it is very important that in these days in all our elementary schools some modern science should be taught, that is a subject that I don't think can with safety be left out.

5146. In what sense do you use the word "taught"? Is it setting the children to learn a number of facts, or of natural principles or laws, out of books?—I think that that leads to very unsatisfactory results. I think the science that is taught should certainly be very largely practical; something or other that will set these scholars to work with their hands: if it is merely learning abstract statements out of books it has very little real effect on their lives, but if they are taught to perform with their own hands simple experiments and to make simple apparatus and use it, then I think the science is of great value.

5147. Even the experimental part of the work should not be in the nature of a demonstration merely by the teachers?—No; children should be able to do a number of experiments with their own hands.

5148. I suppose the actual number of experiments made is a matter of secondary consideration. If a child spent the whole of a month working out one individual thing, groping at first and then finding his way in the end, that month would be well spent?—Yes, I think so.

5149. The cost of the introduction of this scientific work is rather a serious difficulty; you have some experience as to the providing of apparatus for elementary school purposes?—I think that teachers in elementary schools who interest themselves in manual training and also interest themselves in science will find many ways of devising experiments that can be performed at a very small cost.

5150. The balance we were told is one of the principal items of cost, I think it is up to £2.

Monsignor MOLLOY.—30s.

Witness.—I have seen a balance costing about 30s., but after perhaps a year or two's use they seem to get very inaccurate, owing to the careless ways in which boys very often use delicate instruments.

5151. Boys ought to be taught to use them properly?—I think they should, but I have been struck when I have casually thrown in a light weight on a balance that had been in use for some time to notice that the balance did not move. I think if boys were taught to make accurate balances themselves, they would be extremely cautious about a more delicate instrument when they came to use it. I have described lately a balance, the idea of which I got from Germany.

5152. That is the balance you described in your paper read before the Sloyd Association?—Yes, it cost *2d.*, and undoubtedly with that it is possible to do extremely delicate work.

5153. What degree of accuracy do you get?—I am not myself a scientific expert at all, and therefore having made my machine I thought I would test it to see what could be done, but having made this balance, which cost *2d.*, I weighed just such materials as I happened to have with me, turpentine, ammonia, spirits of wine, and olive oil. My results with the turpentine were ·87.

5154. Monsignor MOLLOY.—Specific gravity?—Yes. The British Pharmacopœia says ·874, and there is just a difference therefore of ·006. Then ammonia, my result was ·96, the British Pharmacopœia, ·891, but then ammonia is such a very fluctuating kind of stuff you really cannot tell what you have got, so I don't attach very much importance to that test. Then spirits of wine, my result was ·84, the British Pharmacopœia ·838, a difference of ·005. Then olive oil, my result was 0·92. The British Pharmacopœia gives 0·915. I think that these results show that in the hands of a competent teacher you could really get very accurate results indeed, because this was not as though I was in the habit of performing these delicate measurements every day or knew much about it, but I really took the instrument when I made it and tried it.

5155. CHAIRMAN.—Suppose it was found difficult to introduce elementary science work into a school on account of the cost of the ordinary appliances, would you consider it better to introduce elementary science with such an instrument as you have described than not to introduce it at all?—Most decidedly, and what is more I think this would be a better introduction to laboratory work.

5155. They would better appreciate the delicate instrument afterwards, when they were in a position to use it with advantage?—Yes.

5157. Monsignor MOLLOY.—With your balance they can learn accuracy of method though they won't obtain extreme accuracy in the result?—And then it is only comparative because the results are very accurate when you get to the second or third decimal places. Minute accuracy in the result is not a thing of great necessity for these very young boys.

5158. CHAIRMAN.—They are not scientific investigators?—No, but then you want to teach them the sort of way in which these accurate results are obtained, and you can only do that with an extremely accurate balance. The balance I have made is extremely delicate and sensitive; they can see how to work to get the best results, although the results may be largely a matter of individual skill.

5159. Professor FITZGERALD.—Have you any idea what is the maximum weight it would bear?—I was anxious to get the minimum; you can easily weigh off heavy weights.

5160. CHAIRMAN.—How little would turn it. Perhaps you would kindly explain briefly the construction of this wonderfully cheap school balance?—I hope to get a photograph taken of it (*explains*).

5161. Mr. REDINGTON.—Do you find that the boys like the manual work?—My experience is they like it.

5162. Even those who will afterwards pursue clerical occupations?—Yes, every now and again I have been told that one boy does not take to it as well as the rest, but it is rather rare.

5153. Are the things they produce useful objects, or merely things that are not of any utility?—They make such things as penholders in the Sloyd, and paper knives and things as useful as that.

5164. If the things they produced were not useful objects would the boys take an interest in producing them?—So far as Sloyd is concerned you soon take an interest in perfection for its own sake, you don't much care about the final use of it, you see it is a penholder, you can buy it for a halfpenny any time, but you have to do it with such extreme care that when you have finished it you regard it as a treasure with which you would not part.

5165. But what if the thing were not as useful as a penholder?—I think you ought to have something useful that a child can see the use of; I think turning out cubes a mistake.

5166. Is Sloyd largely taken up in rural schools?—In the Isle of Wight I have a few rural schools where Sloyd is taken up, but it is rather at present taken up by the older boys in evening classes, but I don't think it will be very long before that works backwards and they begin it in the school itself.

5167. Who teaches it in a small school?—The master himself, where he has gone through a course of Sloyd or some other course.

5168. I think you said before that it does not interfere with the work of the school?—That of course will depend upon the staffing of the school.

5169. In a school with seventy pupils in average attendance?—You would have to have two teachers in a school like that, otherwise you could not very well introduce any manual training except just for the younger children.

5170. Could you introduce it into any school with a single teacher?—It would be very difficult, I must say.

5171. What do they omit, as a rule, when they introduce Sloyd?—I don't think it has been found necessary with us to leave out any whole subject, because I think formerly there was a great deal of repetition, I have known schools where they were taking as much as ten hours a week in arithmetic, more time than was at all necessary; and I think I have found out ways of introducing it without leaving out any subject as a whole, though perhaps they would not go as deeply into the details of any subject, such as geography.

5172. Is kindergarten taken up in small schools in England?—Yes, it is taken up almost universally.

5173. Wherever there is an infant class?—Yes.

5174. Even in a school with one teacher?—Yes, for the younger children.

5175. Mr. STRUTHERS.—That single teacher is generally a female teacher and not a male?—Yes, in the case of small country schools.

5176. Mr. REDINGTON.—Is agriculture much taught in rural schools in England?—No, hitherto there has been very little done, where it has been taken it has been as an abstract study, and it is not of much use.

5177. CHAIRMAN.—You have written a paper on school gardening?—Yes, during the last two years school gardening has been one of the subjects recognised by the Code, and some very valuable experiments have been made in connection with that both by County Councils and particular schools. I have made an experiment myself at Boscombe, a suburb of Bournemouth, and I have described it at some length in the paper which I ventured to send, in the February number of "Hand and Eye."

5178. Mr. REDINGTON.—What is the size of the plot?—I have arranged it for twelve boys, each boy has a plot of thirty feet long by twelve feet wide, there is a walk around each plot, I have arranged to have the boys taught by a nurseryman because our gardens are near certain nursery gardens, I have endeavoured to get the best advice I could from all sources so that we have now a system at work which is really teaching the boys the principles of horticulture. They learn to sow vegetables, to watch their growth, and in the end take the produce to market. They keep accurate notes of the time of sowing, details as to the right way of sowing; they keep an account of the right method of working the ground and of what manure to employ.

5179. Do they work it themselves?—Entirely, the instructor does nothing but point out what they have to do, and he instructs them what notes to take, the rough notes the boys take on the ground are worked up in the school under the superintendence of the headmaster, so at the end of two years they ought to be in possession of note books which will be of considerable value to them in after life when they have gardens of their own.

5180. CHAIRMAN.—They don't merely write down in these note books that a certain thing has been discovered by scientific men, or ascertained by others?—No, they say what they have seen and done themselves.

5181. Mr. REDINGTON.—Do they use a text-book?—No.

5182. CHAIRMAN.—The object is not to produce good commercial results?—No, that is a very important matter I think; each boy is responsible for his own plot, and if he is a bad gardener you will have a bad crop.

5183. You consider that plan better than having a number of boys working a plot in common?—Yes, we have cases in which that is done, but you have no opportunity of seeing the progress the individual boy is making, and in that case you have no failure because if the person who is superintending the work sees anything badly done it is done over again.

5184. From the educational point of view, you attach as much importance to failure as to success?—Nothing is more striking than to watch the gardens in summer, some plots will be very far advanced and others backward.

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5185 Mr. STRUTHERS.—What is the effect of failure on the boys; do they give it up in disgust?—No. They must spend a year on the work, and I think all are willing to go on for a second year; a good many who stay on at school go on for two years. It has had one remarkable result, boys have got very much stronger from digging in these gardens, they have got good appetites and eaten more.

5186. Mr. REDINGTON.—Boys in rural districts usually have good appetites, have they not?—This is a town experiment, and town boys are rather frail.

5187. How can you have gardens in towns?—It is in the suburb, undoubtedly they have to walk half a mile away from the school.

5188. Does the teacher go with them on certain days?—No, all the teaching is done by the nurseryman.

5189. Does the time spent there count as part of the attendance?—Yes, that is what I mean by saying it is recognised in the Code.

5190. Does the nurseryman give them any lectures besides showing them how to carry on the work?—Not any set lectures; I have been rather anxious to avoid that because I think after the boys have been at work two years they will be able to appreciate lectures that are given by County Council horticultural instructors. If they begin with lectures too soon they are likely to get almost more harm than good, whereas if they spend two years at practical work with constant advice and supervision, at the end of that time they can attend with profit lectures given by the County Council horticultural instructor and follow them with intelligence. That is what is happening now; they form the principal portion of the audience of the County Council instructor in Bournemouth.

5191. You don't teach elementary chemistry or geology?—I have not done so so far, but I think something of the kind could be done in connection with this work. It depends whether the teacher has some scientific taste. I think it would be a very great help, provided the teaching could be of the right kind.

5192. Professor FITZGERALD.—Have you seen this book:—*Enseignement des notions elementaires d'Agriculture dans les ecoles rurales.—Ministère de L'Instruction publique et des Beaux Arts*? Do you approve of the course recommended by the French?—Yes. I think something of the kind, if we could introduce it, would be valuable. At our present stage it is a little difficult for want of gardeners who have practical knowledge of science.

5193. Mr. REDINGTON.—If a teacher knew something of elementary science as well as of gardening, would he not be able to do better than those nurserymen?—Undoubtedly, but, as in Bradford, I began by engaging an artizan to teach carpentry, so in beginning with gardening I have done the same; but I think the time will come when one will be able to get a teacher who knows something about gardening and who also has had some training in science.

5194. In what standards are these boys?—5th or 6th, or 5th, 6th, and 7th.

5195. There is a provision made by the Department for horticultural instruction?—Yes.

5196. CHAIRMAN.—Not the Science and Art Department?—No, the Education Department.

5197. Mr. REDINGTON.—I see that agriculture is also a specific subject in schools. It seems to be taught merely from books?—Yes.

5198. Is that of much use?—Personally I should never encourage work of that kind very much.

5199. Is it taken up largely in rural schools?—Certainly.

5200. It is not taught in London?—Well, it was.

5201. May I ask you a question or two about the new system of inspection. Do you find that there is great difficulty now in giving a general verdict on a school owing to the teaching being good in some subjects and not in others? Suppose, for example, the teaching of geography was bad in a school and the teaching of other subjects was good?—At present we pay for almost each subject separately. Geography is paid for as a separate subject.

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5202. Well, take writing?—If writing was very good, and reading very bad, in that case we should say that in respect of the variable grant of 12s. 6d., or 14s., the lower grant would be earned, not the higher.

5203. The teaching of all subjects should be good?—Yes, reasonably good.

5204. If an appeal is sent in against the decision of the Inspector, is it more difficult to satisfy the appellant that the decision of the Inspector is correct when you have merely his general impression to go upon than if you had definite tabular results of each individual examination?—I have not had any experience of this nature. I should not think there was any difficulty, because the Inspector would say specifically what was wrong, and any Chief Inspector investigating would confine his attention to this point. I don't think there ought to be any difficulty.

5205. There are many different classes in a school. Some classes may write well, and others not; what would be the recommendation in such a case?—In the case of very big schools I think by our instructions we are not supposed to recommend the reduction of a grant upon the classes of a large school because one particular standard may be weak. We must consider whether the school has been well organised as a whole, and it may be assumed that if we find a weak spot it will be remedied after that warning.

5206. Professor FITZGERALD.—If one assistant teacher is weak do you warn the head teacher?—We should tell the teacher that we noticed it, and we should very probably remark in the report that one particular subject was weak, and if it continued unsatisfactory we should be obliged to reduce the grant.

5207. Mr. REDINGTON.—When you inspect a school do you examine the class or watch the teacher teaching?—I do both; partly watch the teacher and partly examine.

5208. Do you think the teachers have lost the stimulus to efficient teaching which the former system gave?—I think on the whole the teachers are doing more work now than before. I look at my own district. Of course I cannot speak for the country at large, but my impression is that the teachers really do more work and not less work. I don't think you have the same nervous excitement. Formerly a whole school had to be wound up so that by a given date certain results were to be produced. The examination of course was rather hurried because you had a very large number of children to examine in a short space of time, and I think the sort of instruction became rather slight in consequence of having to adapt it to the style of examination; but now the teachers knowing that their work is watched throughout the whole year, and that at any moment we come in we expect to find the school in good working order, and a reasonable amount of the curriculum gone through, I think they work more steadily than before. They have also opportunities of making experiments which they had not before. Being interested in any particular subject, they can give special attention to that. So educationally it was a very great advance.

5209. CHAIRMAN.—The system that you are now comparing with the present system was not the original system?—No, I was comparing it to an intermediate system.

5210. And that is the system still in force to some extent?—Yes.

5211. Your remarks would, perhaps, apply with greater force to the original?—Even more.

5212. Mr. REDINGTON.—Let us suppose then that the original system existed by which the payment of the school depended on the number of pupils who passed the examination in each subject, would not that be a great stimulus to the teacher to see that each individual child was well up in the subject?—The result of it was that the work became too mechanical. The Code, for instance, stated that a certain sum of money would be paid for a pass in dictation. It then became necessary to define what should constitute a pass, and the Code prescribed that a passage of a given length should be selected from the Reader in use in the standard. It thus became the interest of the teacher to see that the book in use was not too difficult. Then the publishers produced a Reader for the standard, which had all difficult words omitted, and so we worked downwards until we got results no doubt, but it may be the value of them to the boys was very small.

5213. CHAIRMAN.—The tendency is to work down to a minimum?—Yes, that was how it was gradually working.

5214. Mr. REDINGTON.—Might not that be corrected by the Department refusing to recognise those easy reading books as suitable for that standard?—It becomes very difficult. It means having a sort of censorship, and I think practically that was never done. The Inspectors were supposed to pay some little attention to that, but in practice what happened was this, that some reading books were prepared for practice in dictation with the difficult words omitted rather than for the purpose of conveying information

5215. Mr. STRUTHERS.—And pages filled up with illustrations?—Yes.

CHAIRMAN.—It has been said of some of our reading books in Ireland that they consist of a series of puzzles arranged in horizontal lines.

5216. Mr. REDINGTON.—Would not the teacher be inclined to look after the education of each child if the pecuniary results depended on the work of that child during the year, whereas now he need not look after the individual child?—The Inspector going round would carefully examine the papers that the teachers had set to the schools. For instance, I generally ask the teachers to examine the schools periodically. Different teachers have different plans. Some examine their schools fortnightly. Then they can keep the papers, and it is a very easy matter for me to look through these and see if the work is progressive, whether the writing and spelling improved during the year, and you can see if there are any number of scholars who are making no progress.

5217. Then you conduct a kind of examination?—Yes, in that way, but it is not conducted by the Inspector. It is conducted by the teachers.

5218. I think you told me that you might if you wished put the pupils through an examination?—Yes. In addition to hearing lessons given, I also take a certain amount of oral work, and a certain amount of black-board work, but what I no longer do is to set the whole school an examination and take the papers away.

5219. Mr. STRUTHERS.—I think you said you might not do that unless you gave the school a warning?—Yes.

5220. I understood at Birmingham that the inspector may without any warning turn on his staff to examine a school?—He would not be at liberty to take the papers away from the school and tabulate the results and report as we did under the former system. I dare say he might examine the whole school if at the conclusion of the examination he was to mark all the classes with the teacher.

5221. CHAIRMAN.—If the inspector found his right to examine challenged, he could assert his right in that way?—Yes, but he ought not to hold an examination with a view of estimating the merits of the school on the old plan.

5222. Judge SHAW.—I don't know that I understand why an inefficient school is examined rather than inspected?—Neither do I, but that is how it stands now.

5223. If inspection is a better test of efficiency than examination why should inspection be dropped and examination take place where the school is inefficient?—Personally I think I can judge the efficiency of a school far better through inspection than examination.

5224. Then you don't approve of the practice of examining schools under the old system where the school turns out to be inefficient?—I think we are in a transition stage. Sooner or later all schools will be dealt with alike.

5225. CHAIRMAN.—Perhaps the idea is, that the teachers of these less efficient schools have not reached the stage at which they can be trusted with the larger liberty of the new system?—I think so. It was new to both inspectors and teachers.

5226. Monsignor MOLLOY.—I gather generally that in your opinion the inspection of the teaching could be sufficiently thorough to enable the inspector to give a fair and satisfactory report of the school as to its efficiency?—Yes.

5227. You think that the method of inspection enables him to give a better report than he could through mere examination of the individual pupils?—Yes, I rather regret I did not bring with me the form that I use for the inspection of schools. I will supply one later.

5228 Is the grant made by the Department in any way proportionate to the efficiency of the teaching that is carried on in the schools?—Yes, a small part of the grant is variable at present.

5229. About what proportion?—There is what we call the principal grant to begin with; either 12*s*. 6*d*. or 14*s*. according as the inspector reports the work is very good or fairly good Then there is what we call the discipline or organization grant. That is a shilling or eighteen pence. Eighteen pence if it is reported as very good, and a shilling if it is only satisfactory.

5230. Then, you have a certain number of special subjects, like music?—If it is good, a shilling. If it is only fair, sixpence.

5231. So that, in fact, the grants vary not only according to the number of subjects taught, but the efficiency with which they are taught?—Yes, to that extent.

5232. Is there a special grant for manual teaching?—Yes.

5233. Is there a special grant for the elements of science?—That would count like geography or history. It is paid for as one of the alternative subjects.

5234. You mentioned that you found manual teaching in some of the elementary schools of Germany?—Yes.

5235. What form of manual teaching was adopted there?—There is an extremely important manual training school at Leipsic which has been established by Dr. Gotze, and his system prevails over a large part of the country.

5236. In elementary schools?—Yes. I am only dealing with elementary schools. I don't know anything of the more advanced. I noticed in Vienna, they had a different system of their own, quite different from North Germany. I noticed that they were extremely interested in the subject when I was there. They were only commencing then, but they have now made considerable progress.

5237. You have experience of three systems of teaching woodwork, Sloyd, the English modification of Sloyd, and the Leipsic. To which of these would you give the preference?—Personally, I am for Sloyd. When I began to deal with the subject I was very much opposed to the idea of Sloyd. I objected to the use of the knife. The little knowledge I had of the subject had been of boys provided with work in an English workshop.

5238. The main difference between Sloyd and the English modification of Sloyd consists in the tools that are used?—I don't really think it is so much a matter of tools at all as the articles, and the way in which they are made.

5239. Professor FITZGERALD.—The way in which they are made depends upon the tools used?—To some extent; but there is a degree of finish aimed at in the Swedish system which I think is very striking indeed.

5240. Monsignor MOLLOY.—At all events you look upon the particular system adopted as a secondary question? You think that one or the other system ought to be introduced into the elementary schools as far as possible?—Yes, I don't think it matters which. They are all good.

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5241. Do you find practically that the voluntary schools are as ready to take up manual training as the Board schools?—It is a question of expense.

5242. They are more straitened as regards their funds?—It is easier for the Board schools and where association is practised. I think the voluntary schools can manage it quite well, and it is only necessary for a few schools to join together and form a centre like the Board schools.

5243. You don't find they have any prejudice against it?—No, wherever they can they are quite willing to try it.

5244. In connection with manual training, drawing, and physical science, a question will arise as to whether it is desirable that these subjects should be taught by the same teacher who teaches the ordinary subjects of the school course. What do you think?—I think in a large town it is better to have special teachers, a special teacher for cookery, a special teacher for manual training, a special teacher for drawing, and probably as in London a special teacher for juniors. In country districts where you have only one teacher, I think it is desirable there should be some sort of country authority who would be able to assist the teacher to supervise the work, and give advice. I think the teacher of a school cannot do a great deal of this work without such aid.

5245. Do you think it desirable that he should be able to do it?—Yes, I should like to see all these subjects, science, manual training, and drawing studied in the training colleges.

5246. Then in order that the teacher may be able to teach these subjects he must learn them in a training college?—Yes.

5247. Therefore you think these subjects ought to be taught in the training colleges?—I think that very much.

5248. You don't think it would interfere seriously with the progress of the teachers in other subjects?—No; quite the other way.

5249. Do you think the English modification of Sloyd or the original Sloyd is the easier for the master of a school to teach?—I think any teacher would very soon work through Sloyd models and then modify them for himself. There is no difficulty in making a modification when you have learned the principles.

5250. Professor FITZGERALD.—Do you think the teacher of a school could learn to teach the Swedish system and introduce it into a school more easily than the English Sloyd system?—I don't think so.

5251. Mr. STRUTHERS.—Is there *any* English system?—A great many teachers who have gone through the course in Naas have modified it in various ways, but I don't think there is any one particular system which may be called the English Sloyd.

5252. Monsignor MOLLOY.—In large towns I think you said it would be desirable to have special teachers for these subjects, who would go from one school to another, or else to have centres?—That would depend on circumstances. Personally I should like to see a row of workshops attached to every large school, where they would carry on housewifery for girls, and for boys manual training.

5253. Do you find that the system of centre schools works satisfactorily?—Yes; it works satisfactorily in Bradford and Southampton.

5254. Mr. STRUTHERS.—Do you know any place where it is the case that workshops are attached to large schools? I may say we have in Edinburgh a manual training centre attached to a large school?—That is what I should like to see.

5255. Monsignor MOLLOY.—In order to give time to teach these subjects in schools where they have not hitherto been taught, that time must be taken from other subjects?—That is so.

5256. You think it would be better to take it from other subjects by omitting certain details which are at present gone into?—I think so.

5258. You referred to one subject in which details could be omitted, namely, geography. In grammar do you think there could be time saved by omitting

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details?—Decidedly. With us in England very little is attempted in the way of formal grammar. We used to spend a great deal of time in teaching detailed analysis of sentences; now it is practically given up. We used also to carry parsing very far; that is also given up. I think the grammar that is now taught is chiefly what is found necessary for the teaching of composition and the speaking of English.

5259. Is it your experience that children can learn the art of composition and the correct use of the English language without these details of parsing and analysis of sentences?—I noticed that there was no connection between the two. It used to surprise me in perusing grammar papers how often I found a perfect piece of English composition and then turned over and found a mass of mistakes in parsing and analysis. Again you find parsing and analysis extremely good, and the piece of English composition full of mistakes, and I came to the conclusion that there was no connection between the two

CHAIRMAN.—That is almost universally the experience of our Inspectors in Ireland.

5260 Professor FITZGERALD.—Has giving up grammar diminished the intelligence of the pupils?—We substitute for it other subjects which are equally educative.

5261. Only equally educative! Do you think it is an advantage to give up grammar for the other subjects?—Most decidedly, it is a saving of time. We have introduced history, geography, and a certain amount of science in favourably constituted schools, and we could not have done that if we went on with the former system of parsing and analysis.

5262. Do you not think that at present arithmetic is taught practically by this manual training?—It is an immense help.

5263. And does it not give actual practice in arithmetic along with it?—Most certainly.

5264. That gives reality to arithmetic which was lacking before?—Yes.

5265. So that diminishing the number of hours formerly given to the practice of arithmetic and now giving them to manual training, is an improvement in arithmetic?—I think so.

5266. Do manual training schools require more supervision than schools for other subjects?—Yes. It is impossible for a teacher of manual training to have more than eighteen or twenty pupils at work.

5267. Do you think the manual training classes can make models to be used in their science teaching, make the apparatus?—Yes. I don't think that it is necessary to make apparatus for science lessons in the manual training classes. I am inclined to think that if the boys were going through some course in manual training then their science master would be able to utilise the skill so gained in making experiments or apparatus for experiments.

5268. You don't think it would be possible to make apparatus as being part of the manual training?—That might be so, but probably the division of labour would be found to be on the whole best. I have noticed in Southampton, where one of the masters teaches a good deal of experimental science, that the boys are able to make very ingenious apparatus, but they don't make that in the time devoted to their Sloyd work, but in their leisure time.

5269. You think education in observation and experiment is a distinct kind of education from this manual training?—I think so, but they are closely connected together.

5270. You think that it is desirable that teachers should have freedom in making experiments in an educational direction?—Most decidedly, subject to supervision.

5271. Rev. Dr. WILSON.—Is manual instruction extensively given now in the training colleges?—I am afraid not. I am afraid there is little. I have not had much experience.

5272. It would be very desirable, would it not, that it should be given?—From my point of view quite essential.

5273. Mr. MOLLOY.—Take a school of fifty inspected under the intermediate plan of inspection by sample, what time was devoted to the inspection of such a school?—It made very little difference whether the school was fifty or a hundred, because children required an hour for arithmetic and half an hour for dictation. Each subject required a certain amount of time and we used to arrange to hand out papers, and while the written work was going on we heard the oral work, so that really the amount of time required was the time one school needed to get through the whole of the written work.

5274. There are numerous schools in Ireland with an attendance of fifty?—I used not to find that a small school took up less time than a much larger one. For by organising our work we used to reduce the amount of time that would seem necessary in a larger school.

5275. Would you compare the amount of time devoted to inspection by the sample process and that adopted at present?—I think it is desirable to spend as much time in a school as will enable you to find out the life that is led in the school. If you go there at the time of opening and stay there until the closing you will know more about the school perhaps than if you just spent an hour examining.

5276. Under the sample process of inspection would you intrust the duty to the Sub-Inspector exclusively?—I think the District Inspector should visit as many schools as he possibly can, but it will probably happen that his district will be far too large to cover the ground in one year, but he ought to be able to cover it in two years. I think it is most desirable that the man who is in charge of a district should feel that in, say, two years he will know the condition of every school in the district.

5277. By the present plan, inspection duty would not be intrusted exclusively to the sub-inspector?—No, certainly not.

5278. There is no appreciable difference in the number of inspectors required for the country owing to the change in the form of inspection?—I don't think it would make very much difference. The tendency would be on the whole in the direction of economy, but I don't think it would make a great difference, partly because under the present system, supposing a school is rather weak it seems only natural for the inspector to pay two or three visits to the school, and try to improve what is defective by advice, whereas under the old system he will shrug his shoulders if he finds the school very bad and report accordingly, and never go near it again until next year. Now he has an opportunity of suggesting amendments.

5279. CHAIRMAN.—I take it, a good deal of time is saved for inspectors when they get rid of all the paper work that has to be done in making out percentages and so forth, in connection with a minutely detailed results system?—Quite so.

5280. Mr. MOLLOY.—You have already answered in favour of the introduction of manual instruction into the training colleges. Considering the fact that this manual instruction has been in force ten years, how do you account for its not being introduced into the training colleges, for we have been told only two training colleges have it?—I am not surprised. It is the conservative spirit that prevails in most educational institutions.

5281. CHAIRMAN.—The authorities of the training colleges get a certain amount of money under a capitation grant?—Yes.

5282. The less expense they go to, the greater advantage they have in working the college?—Yes.

5283. And they can give more time to subjects they attach importance to, if they don't take up subjects that they think little of?—Possibly, though they might earn money from this manual training. The probability is that a sum of money can be got either from the County Council or some other source. I am inclined to think it is largely a matter of mere want of thought.

5284. Mr. MOLLOY.—Is the initiative of a serious change, such as the introduction of manual training,

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taken by the college authorities or by the Education Department?—They are supposed to work together, but as a rule the initiative comes from the Education Department.

5285. Is there a Sloyd course here where people could undergo training?—I don't think I know London sufficiently well to be able to say that. I think the London School Board have a course.

5286 Mr. Struthers.—There are Sloyd holiday courses in different parts of England?—Yes, that is quite common. A great number of teachers come annually from all parts to Aberystwith or Bangor, or some nice place, and engage a teacher of Sloyd to spend six weeks there.

5287. Professor Fitzgerald.—Is that organised by the teachers themselves?—Yes, practically.

5288. Captain Shaw.—Isn't drawing rather beyond the capacity of children in Sloyd; for instance, projecting the curve of a spoon or axe handle?—Not quite, except they would not be able to do that at an early stage.

5289. Even a 7th standard boy could not project a difficult curve?—Possibly not.

5290. This is open to the objection that drawing becomes mechanical for these difficult models?—I should have thought it extremely unlikely that any child would be able to draw an axe handle.

5291. If a long time is devoted to working at these models, does not that discourage the unsuccessful student?—It will depend on the teacher. It is extremely difficult to get anything well done, but a good teacher will secure it.

5292 Models under the English system can be completed in a much shorter time?—Undoubtedly they are very much easier.

5293. That does not weary or discourage the unsuccessful student so much as working five or six lessons from the same model?—Which sets up a different idea in his mind. What I wish to say is that children should understand what finish really means, and that you cannot do that without hard work.

5294. Then as regards the teaching of science, do you approve of its being taken up in school as a class subject?—I think so.

5295. Do you approve of those courses "A," "B," "C," and "D"?—They are only for the guidance of the teacher. One teacher is inclined to take up this subject and one another. Whatever subject the teacher is interested in he will find some useful advice there.

5296. Have you found that those subjects are more taught in school as a rule?—It is very desirable that the teachers should have freedom to teach what they know. Supposing you have a man who has spent a good deal of time in study of chemistry it is quite natural that he should take up a special course in chemistry, or if he has devoted a good deal of time to biology he should take up that course.

5297. The question is whether he could teach children anything useful in these special sciences, or whether their time would not be more usefully spent in getting the general principles of science?—I see what you mean. Of course I very much believe in a general course of science rather than in a special course in some one subject.

5298. Professor Fitzgerald.—Then you would on the whole prefer course "H"?—I think, as far as I have been concerned, I have always encouraged the teachers to draw up their own scheme, and then I have got information about the scheme that they have drawn up, and I have submitted it to some one who would be capable of judging.

5299. Chairman.—It was in that way the alternative schemes came into existence. They were drawn up locally, submitted to the Inspector of the Department, and then approved?—Yes, I expect so.

5300. Captain Shaw.—Have you had much experience in the training of girls?—We have done a good deal in the way of encouraging cookery, but that is about as far as I have gone.

5301. You have not taken up any laundry work?—I have not had any important experience myself in either laundry or method of housewifery, but to the teaching of domestic economy I have paid some attention. Domestic economy is taught from small experiments, and in some schools I have visited it has been very successfully taught.

5302. Then as regards the inspection of needlework; is that done by the inspector?—Yes; when I first began I got a lady to assist, but in time I felt competent to deal with the subject myself, the work being very simple, but to begin with of course I had advice. I must say I have no difficulty whatever in inspecting elementary needlework.

5303. In the Instructions to Inspectors, it says, with regard to cottage gardening: "Lessons in elementary science which are given in the school-room may be illustrated by the practical work of garden beds, and then science will escape being mere book learning, and gardening will be far more than mere technical training. Even if on leaving school the boy may live in a town and have no opportunity to keep up his gardening, his time spent over it at school will not have been wasted." Is that the general principle on which school gardening is conducted?—Yes, it is quite my feeling.

5304. In the Instructions to Inspectors two leading principles are laid down as to what should be regarded as the sound basis for the education of early childhood. Do you consider that these principles should be carried on beyond kindergarten?—What are these principles?

5305. "First, the recognition of the child's spontaneous activity, and the stimulation of this activity in certain well-defined directions by the teacher; second, the harmonious and complete development of the whole of the child's faculties. The teacher should pay special regard to love of movement, which alone can secure a healthy physical condition; and to that eager desire of questioning which intelligent children exhibit, and they should be developed simultaneously so that each subject of development may be complete in itself"?—I think that is right enough. All work of this kind would more or less carry out those principles.

5306. Do you think it should be continued up to the 3rd, 4th, or 5th standard? When do you think children should be taught facts, or how far should it be merely training?—I would teach facts from the very beginning. I don't see why you would exclude the teaching of facts from an infant school.

5307. Facts would come in incidentally in the general training?—I don't know. I don't think I quite understand. What facts?

5308. You would not teach a child dates or give it something to learn by heart in its early training?—Dates, not perhaps, but they learn a good deal by heart in an infant school, more often in what we call standard one. They learn to repeat small recitations and hymns.

5309. Mr. Struthers.—Is recitation compulsory?—They always take it, any quantity of it.

5310. For the higher discipline grant?—The tendency is to have too much of it because it is easily taught.

5311. "No school shall receive the higher of the two principal grants unless the inspector reports that the scholars throughout the school are satisfactorily taught recitation?"—As a matter of fact all infant schools do take recitation, and it is compulsory in the higher.

5312. Captain Shaw.—"It will be found that elementary schools when taught the right method can be treated with greater variety. Reading becomes kindergarten lessons through pictures and word-building; writing becomes a variety of kindergarten drawing; elementary exercises in numbers are associated with many of the kindergarten occupations." That means you don't set down children to learn writing at one particular lesson, or spelling at another lesson, or arithmetic as a separate subject, but the whole thing is worked in with the kindergarten exercises?—I think teachers would be able to say whether the

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lesson was mainly intended for a reading or an object lesson. Still one class of study would support the other, more so in the earlier stage than in the later one. I think it is a mistake to give an infant a writing lesson of three-quarters of an hour, whereas when a child gets older you may give a longer lesson.

5313. Professor FITZGERALD.—Do you not think it well with the writing lesson also to teach them something else?—Yes.

5314. Co-ordinate the subjects so that they shall all be taught during the school time?—In the early stages you must do it. In the early stages more might be done in this direction than has been done.

5315. Mr. STRUTHERS.—There is a danger of the teacher's attention being distracted from the subjects he is teaching if he has to attempt to co-ordinate many subjects?—Yes, there is that danger.

5316. Mr. HARRINGTON.—To what extent is navigation taught?—It is not taught in any day school: but in Southampton it is taught in evening schools, and I am not sure that in some villages where the people are engaged in fishing it would not be a desirable thing to have navigation taught in the sixth and seventh standards, and if boys began it in that stage they would continue it in the evening school. I am rather paying attention to that now because I find that one or two managers in my district are of the same opinion, and they happen to be managers who know a good deal about navigation.

5318. To what extent is Latin taught in the schools?—It is practically not taught at all.

5319. You don't approve of it being taught?—No child ever takes it in the schools I have to deal with.

5320. Mr. STRUTHERS.—I suppose it is the general opinion of the inspectorial staff that the schools have risen in efficiency of late years?—Decidedly.

5321. You attribute that partly to the change of method from examination to inspection?—I should, personally.

5322. It gives greater freedom to the teacher and infuses greater enthusiasm into the work?—Both.

5323. Is there not another consideration that, with the abolition of the age qualification for the standard, you have children toking a certain standard, say standard 5, at a later age, and therefore more capable of doing the work of that standard?—I think, as far as I have been able to judge, there has been a good effect at both ends of the school; the teachers have no longer any inducement to keep the older children back in lower standards in order to make certain of their passing and earning grants, and in the upper part of the school there is no need to hurry them through the standards, and thus it is working beneficially.

5324. But, as a matter of fact, you find the age rather rising for the standards of the higher classes?—I would expect that.

5325. A greater number of children now take standard 5 at twelve years of age than at eleven?—I have not thought of that so much as of the fact that we have a larger number of children in the first class, because I always attach more importance to the number of children in the first class taken as a whale, which usually, except in large schools, includes standards 5, 6, and 7, than to the number in any particular one of those three standards.

5326. Would you not think it a good method in examining, that the inspector should direct his attention to the higher standards, and throw the responsibility for due gradation on the head master of the school?—It amounts to that now; I have complete freedom in classifying scholars, but the way it works out is to give us a larger number of children in the upper part of the school.

5327. Do you think the general introduction of hand and eye training and manual training has tended towards this improvement?—I think so, decidedly. I think many scholars have stayed on especially for the purpose of taking out this manual work.

5328. They have found the work interesting, and have stayed on longer?—Yes.

5329. But you also think there has been an improvement in their education—they have their wits sharpened?—Yes; I think they are intellectually stimulated by it.

5330. Is not the intellectual effect of this manual work partly due to the fact that the children are taken in small classes?—Yes.

5331. So that the teacher deals with them more individually?—It must be individual instruction.

5332. Each child is set more or less to do a problem for itself?—Yes.

5333. One special point of this instruction is that it cultivates the individuality of the children?—Yes.

5334. Might not the same be said of grammar, if you choose to teach your children in groups of ten or twenty?—I do everything I can to encourage teachers with regard to the upper part of the school to get the children to work by themselves more than formerly, that is to say, to put into their hands some suitable text-books, and get them to endeavour to understand it for themselves—not leave them quite alone, but give them some oral instruction, and give them the book bearing on that subject, and leave them to try and work it out for themselves.

5335. In fact, to revert to the old-fashioned system of allowing the older pupils to work individually for themselves under the supervision of the teachers?—Yes; I am encouraging it as much as I can, and it is now much more possible than under the old Code. You find that in rural schools more than in town schools, and, in consequence, they are much more independent and self-relying.

5336. Manual training in the German schools is not part of the Government programme?—No; they have never succeeded in making it that.

5337. It is due to the influence of a special association which has its headquarters in Leipsic?—Yes.

5338. As far as manual instruction is introduced into any of the German schools it is due to the efforts of this association and similar bodies?—Yes. I would not say as regards Austria that there the Government has not directly encouraged it. They certainly meant to when I was there last, but as regards North Germany what you say is undoubtedly true. The Government have not been able to encourage it directly, and as a matter of fact I have formed the opinion that there was less manual instruction in the schools of Prussia and North Germany than there is in this country.

5339. About the Swedish Sloyd, one great point of Sloyd as taught at Naas is that the exercises are being perpetually revised from the experiences of the teachers?—Yes.

5340. They aim at having a series of exercises which shall lead up, one to the other, like the propositions in Euclid?—Yes, that is quite right.

5341. Is not a system worked out like that with the assistance of many teachers who are practically engaged in teaching the subject, better than the chance development of one man here and another man there?—Undoubtedly, that is one reason why I think so much of the Sloyd system, because it is carefully wrought out, based on years of experience.

5342. And the observation of many teachers practically engaged in the work?—Yes.

5343. Then do you find Swedish Sloyd taught in many schools in England?—Well, I cannot particularly speak of the country as a whole, but we had a good deal of it in Bradford where I was, and in Southampton where I now am. The course is practically Swedish Sloyd with some small modifications, but the teacher is himself quite a believer in Sloyd, though he has been through Leipsic and has the City and Guilds of London certificate.

5344. CHAIRMAN.—Is there not one modification insisted upon by the Education Department, do they not require that the tools should be the ordinary carpenter's tools?—Yes, they insist on that, but there is nothing in Sloyd to prevent that.

5345. The Sloyd knife can be used within the terms of that regulation?—Yes, provided they take up a sufficient number of exercises to go beyond the mere use of the knife: it would not do to pay a grant for the first two or three exercises.

5346. Mr. Struthers.—Is there not a regulation of the Science and Art Department that their grant is given for instruction in the use of tools used in handicrafts?—Yes, that was in their circular.

5347. It is not at present in force, that regulation?—I am not quite clear, because it was not in my department.

5348. It is alleged that this circular has somewhat discouraged the introduction of the Swedish Sloyd?—I think there was a feeling among teachers that the South Kensington authorities were not in favour of Sloyd, but as far as I have observed, in Southampton the manual instructor has not complained at all of the working of the South Kensington regulations: in other parts of the country perhaps it has been different.

5349. You spoke of this instruction in woodwork in Bradford as raising the self-respect of the poorer classes of boys: have you any experience elsewhere to the same effect?—I have not been working in any town where there have been so many poor children.

5350. I saw in an evening school at Dundee, a large number of factory boys who were being taught woodwork, and the people made the same observation as you have just made. About experimental science, I suppose you don't approve of teaching science for the sake of information merely but chiefly for the training that may be got from it?—Yes.

5351. Do you think the training to be got from experimental science differs very much from the training to be got from accurately graduated woodwork?—I think, on the whole there is something about training in experimental science which is an introduction to all kinds of modern industry. I am thinking, for instance, of dairying; you cannot take up any book on dairying but you find that students are instructed to pay attention to the temperature of the milk. If you are performing a few simple experiments in science, the first thing you learn is to take the temperature, and notice the varying boiling points of two or three different substances, and those experiments do lead on to enlightened appreciation of almost all kinds of modern instruction.

5352. But as far as their educational effect is concerned I think you said before that they are very closely connected?—Yes, I think manual training of the right sort is a very great assistance to performing these experiments.

5353. Professor Fitzgerald.—Does manual instruction give any training in the making of experiments and experimental reasoning?—I would not say that, that is where I think it would rather fall short.

5354. Captain Shaw.—Does it excite curiosity and a spirit of investigation to the same extent?—Most decidedly not.

5355. Mr. Struthers.—Those points being all recognised, it comes to this, that there is only a limited time for teaching in school. Do you think there is sufficient time to run all these subjects abreast in addition to the ordinary work—to teach drawing, manual training and experimental science? Don't you think it would be better to make a choice among them in the elementary schools?—I think it would be possible to find time for them all; it is not as if you wished to teach any one science, such as chemistry.

5356. How many hours a week would be required for efficient teaching of woodwork?—Either a morning or afternoon attendance weekly, and that is partly occupied with drawing. That is how it is done at Southampton; they commence with making a working plan and then go on with the woodwork. I think that is found time enough to make steady progress.

5357. How many hours a week?—Two and a half, but then they would have drawing in addition—freehand or model drawing.

5358. How much more time?—I think one and a half hours a week.

Chairman.—It might be well to distinguish the standards.

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Mr. T. G. Rooper.

5359. Mr. Struthers.—I am speaking of standard 5?—There is ample time in the lower part.

5360. That will be four hours for manual work and drawing. What time should be given to experimental science—it is naturally a slow subject?—I should have thought that that might have been done by degrees, not so much every week, but they would have their science lessons. Having learned under the instruction of a teacher who would demonstrate the work, they would devote the next week or two to constructing the experiment.

5361. May I ask if your department insists on definite time tables?—With elasticity. You might have an hour set apart for science, but that hour might be either spent in demonstrating or in actual experiments on the part of the scholars.

5362. Taking it all over, do you think two hours a week would be required for science?—I should have thought it would be desirable to have two hours, but it would not be necessary—one hour would do.

5363. Useful practice could be given in one hour?—I think so.

5364. That would be five out of thirty-two hours. Do you think that would leave plenty of time for efficient teaching of the other subjects which are necessary?—I think so. There has been a good deal of waste of time in mere repetition.

5365. But particularly in the lower standards?—Even in the higher. I think if you spent a morning watching them you would see that there is a good deal of time that has been marking time, for want of variety—perhaps reading what they can already read perfectly well. Every boy in standard 5 is a good reader, and they spend a good deal of time reading books which are not progressively harder.

5366. One question about the school gardens: you would not make this a general subject?—No, only under certain conditions.

5367. It is more or less a technical subject?—I think so; in a country district that is why I should be inclined to teach it in connection with science. I think the science teaching in a country school could very well be connected with a school garden, because I think simple experiments could be carried out which would form a suitable introduction to physical science.

5368. You think that that would be a suitable preliminary to more advanced instruction in evening classes and by County Council lecturers?—I am sure of that. At present half the County Council horticultural instruction is wasted because there is no foundation.

5369. Rev. Dr. Evans.—Kindly tell me whether the primary schools that you examine send up many pupils to the universities?—I should say that in a town like Bradford every year a certain number of pupils would get scholarships from the elementary schools, which enable them to attend grammar schools. Those boys are passed on, and a certain number have gone to the universities and distinguished themselves very much.

5370. Chairman.—They can get scholarships in the universities from the grammar schools?—Yes. In our own staff there was a boy from one of the elementary schools who went to a grammar school, then distinguished himself at Cambridge, and is now one of the inspectors of schools.

5371. Rev. Dr. Evans.—Would you recommend the general adoption of manual instruction, provided a large number of pupils were sent from the primary schools to the universities?—I don't think the influence of manual training is found to interfere with the progress of scholars in primary schools.

5372. Does the manual instruction tend at all to lesson the attention to grammar and linguistic studies?—I cannot say that our linguistic studies in elementary schools in England have been satisfactory, they have not been as in Scotland where they have taught Latin, it is a great advantage no doubt.

5373. I had already come to that conclusion. I could not understand the disregard that seems to be growing for parsing and the analysis of sentences?—Yes, that is quite the case.

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Mr. T. G. Cooper.

5374. Have you ever suspected or had reason to suspect that manual instruction tends to a particular formation of the hand and to give a physical type?—I think that would be the case if you were to confine the hand to the use of some particular tool, but provided you have a variety of tools then I don't think it does affect the hand.

5375. In one of the largest factories in this country I have been told by the manager that they look for the children of parents who have been engaged in a particular department to take up the work of that department because it is found that these children actually inherit a particular formation of the hand?—That I can quite understand.

5376. And that in consequence of inheriting that particular formation of the hand they become naturally qualified for succeeding in the particular kind of work better than other and more intelligent boys?—Yes, I quite believe that, and that a good deal might be made out of it if one were to study the growth of the population in a manufacturing district like Bradford.

5377. Do they teach how to grow plants from cuttings in the school gardens?—Yes, in the gardens I have described we have special plots for teaching pruning, grafting, growing plants from seed, growing plants from cuttings, and what not.

5378. And that will lead to an improvement no doubt in time in both horticulture and agriculture?—Yes.

5379. Do they teach anything as regards the composition and use of artificial manures?—We have been making experiments in that direction, at present it is a little difficult to know what experiments to make. In a French paper some very interesting experiments are suggested, which we were thinking of carrying out.

5380. Do any of these school gardens compete at local fruit and flower shows?—We have got all sorts of prizes; last year, which was an extremely dry year because of the long drought, I forget at this moment which particular crop it was, whether it was broad beans or potatoes, but one of our crops was certainly the best exhibited, and I thought it was extremely encouraging. Of course it was considered that we had special help from the instructor, but still we did succeed in actually producing the best results at a particular show.

5381. Further with regard to these school gardens you said, I think, that the pupils did all the work themselves?—Yes, that is essential.

5382. Now, when any of these young people go into an industry on which gardening bears, have you had evidence that they had benefited by your training?—There is no doubt some of them have taken up gardening, but as a rule they have taken up other professions; there is not very much gardening in the neighbourhood of Bournemouth. Most of them have passed on to quite different occupations, but I have met them since and none of them regret the time they have spent at the garden.

5383. In examining under the old system did the inspector assign marks to the pupils according to the answering?—We assign no marks, simply put "pass" or "fail"

5384. Had you a list of the pupils?—Yes, with three columns, for reading, writing, or arithmetic. We put an X if a child passed, and an 0 if he failed

5385. You did not discriminate as to the value of the mark?—Very slightly; we might have a private mark if it was very good, but there was nothing prescribed.

5386. Chairman—You have no elaborate system of graded passes, with pass No. 1 and pass No. 2?—No, I never had anything of the kind.

5387. Rev. Dr. Evans.—Was any return of the tabular report made to anybody?—We used to send our schedule to the Department, but our report was based on the percentage of children that passed in each subject.

5388. And it is your distinct opinion from your own experience that that system was not as good as the present?—Undoubtedly.

5389. In case the old system of examination by results were continued do you think the teachers would take kindly to the introduction of manual instruction?—It would have been difficult for them to do it undoubtedly. During the last part of the year you might have 30 per cent. of the children coming in who were very backward; but the teachers would nevertheless be bound to present them in a certain standard and to devote their whole time to working up those backward children, whereas now they would say "If you come into school under these conditions, we cannot devote time to coach you specially," and the children would have to spend a longer time in the standard.

5390. And would you have found a difficulty in introducing manual training into schools under the old system?—Yes, it would have been impossible.

5391. Chairman.—When you spoke of the difficulty of introducing manual instruction into very small schools and rural schools, did you refer to all the grades of manual instruction, or were you thinking only of the Sloyd system?—I was thinking of the advanced stage; it is easy for the younger—the infants and standard one.

5392. And also for what are called hand and eye occupations in the Birmingham system?—Yes. I find the Birmingham system is in use in some of the rural schools in the Isle of Wight.

5393. That is Mr. Bevis' system?—Yes.

5394. Is it in operation in any school where there is only one teacher?—No, I think even in some of the smaller schools they manage to have two teachers, but they have introduced that system in a modified form, and very effectively.

5395. It would be better to have it in that form than not at all, in that class of school?—Yes.

Rev. C. D. Du Port, H.M. Chief Inspector of Schools, examined.

Rev. C. D. Du Port

5396. Chairman.—You are one of the Chief Inspectors?—Yes.

5397. What district have you charge of?—As inspector I have charge of what is called the East Lambeth district, which is a central slice of South London; that is my district as inspector. And as chief inspector I have responsibilities over what is called the East Central Division of England, that is a central piece running as far north as Birmingham and Leicester.

5398. So each Chief Inspector has a district of which he himself is inspector?—Yes, which district ought to be inside his division, only it suited the Department seeing I had become rather experienced in London work, and more or less acceptable to the Lambeth educationalists, it suited the Department in appointing me to the East Central Division of England, there being no vacancy in the division, to say "remain in London as inspector and take up with it the responsibilities of Chief Inspector of the East Central Division."

5399. Have you also had experience of other districts?—Yes, I was for nineteen years working with Reading as my centre, which is in my division now.

5400. Professor Fitzgerald.—Then is your district outside your division?—My district is outside my division.

5401. Chairman.—And have you a Chief Inspector over you for that district?—Certainly, the Metropolitan Chief Inspector is my chief inspector; he happens to be the Chief Senior Inspector in the Department, so there is no complication.

5402. You have some experience of the working of manual training in schools?—Yes, I have seen all I could get to see of it in the division, a good deal in Birmingham, and a little in Leicester, and what one could get to see of it about Reading, where there is not much; and of course I have seen a great deal of it in my own district in London.

5403. You have seen it in the case of both boys and girls?—Yes, I have made no difference; I have

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made it a point to inspect, as far as time allowed, any kind of manual work done in the schools.

5404. In the case of boys' schools, what is the chief kind of work done?—There is practically only one kind in London, you might call it the English Sloyd or woodwork.

5405. You don't like to call it carpentry?—I don't like, and they don't like to do so, because there are reasons—Trades Union reasons—but carpentry does not altogether describe it.

5406. Then in addition to working in wood, as we may call it, there is also working in metal?—Very little in London; there is in London only one great centre of metal work that is connected with the School Board, in Marylebone region; it is not taken up as a general principle of education by London educationalists, or the School Board in particular.

5407. In the case of girls?—In the case of girls in London I am obliged to speak much more from my own individual district. I should say that in London, in the case of girls, the teaching in cookery and teaching in laundry was very nearly universal, I should think four-fifths of the schools in my own district (that will cover 90,000 children). I should think four-fifths of the schools under the Board in my district take both cookery and laundry.

5408. Educationally, do you consider the introduction of these subjects an advantage?—Oh, I think an unmixed advantage; the learning of the woodwork adds a practical and lasting element to the education of the boys, and there are direct arithmetical results connected with it. I have had masters tell me only within the last few days—I was inquiring whether they taught anything like practical measurement of areas—"Oh, yes," they said, "our boys taking woodwork naturally fall into that." It lends a concrete tone to the general arithmetical teaching of boys, and your Grace knows that all teaching of woodwork—and that is one very strong argument against calling it carpentry—all teaching of woodwork is based upon drawing; nothing is done by rule of thumb, so that it becomes a scientific training.

5409. Then, in the case of the girls, as to cookery and laundry work, do you consider that these are educationally of the same advantage?—Oh, yes, they are, but not exactly parallel.

5410. Dressmaking also?—Dressmaking is not quite so general, and the dressmaking is connected more with the older children. The only dressmaking classes I know in London would be connected with four or five schools out of fifty.

5411. We visited one at the Hugh Myddleton school?—Yes, and they were quite the older children. That is the reason I did not put it in the same category as laundry and cookery, which are taught universally.

5412. Woodwork, I understand, does not begin until the fifth standard, and probably the same holds for cookery?—Payment for woodwork by the Science and Art Department does not commence until the fifth standard of the boy's life; but I was in a woodwork school yesterday, I happened to be inspecting it, and there was a class of the fourth standard at work in it, but the Science and Art Department will not pay for them, but they were there as free scholars, and I took special pains to ask the head of the school at the time about them. I asked, "Is the time spent by these boys in standard four worth it—is the *jeu* worth the *chandelle*?" "Oh," he said, "Yes, these will be my best class in a couple of years' time." He seemed to think that by breaking ground in the fourth standard he would get over a good deal that would be perhaps delaying to their fifth standard progress.

5413. Do you think he meant the best class in woodwork only?—Yes, because he was a special teacher in woodwork.

5414. But you have formed an opinion of the effect of this woodwork teaching upon the school as a whole?—Yes, or rather the classes in the school involved; it does not touch the whole.

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5415. But I mean the school-work as a whole?—Yes, distinctly, it is a very decided advantage.

5416. Is that the opinion also of the teachers?—Yes, I think so, under our new system of inspection without examination; but I think under our former system the number of exceptions would have almost carried the majority.

5417. Was it possible to work this system of practical education under the former system?—No, it could not have developed under the former system as it has developed during the last three or four years; the teachers would not have been sufficiently with us. You will quite understand, your Grace, that even now it is a little disturbance to the organization of the school. It was a double centre I was at the day before yesterday—there were 40 boys passing from their ordinary school lesson that afternoon, 40 other boys from the sixth standard had been absent from their ordinary school-work that morning.

5418. But a good deal of the evidence we have got goes to show that that time is fully made up for by the improved capacity of the children?—I have not the slightest doubt of it; they can sharpen wits at school, but a concentration and application of wits is caused by this woodwork.

5419. That might not be obvious to the ordinary teacher at the beginning?—All good teachers in my district would admit it is an unmixed good, and under the present system of inspection it is worth the little disturbance it causes in the school organization.

5420. At what point in the classification of a primary school do you think these subjects ought to be introduced?—We pay as a department in the case of the girls for cookery and laundry at the fourth standard stage.

5421. But not before it?—No, and we should not.

5422. Is there any manual training for girls between kindergarten and the fourth standard; take the case of girls that pass out of an infants' department into the first standard?—With us in London the first standard is almost invariably the top of the infant school.

5423. In that case my question would refer to the second and third, and in other cases it would refer to first, second, and third: is there any manual training for those girls who have passed out of the infant school and not reached the fourth standard?——

5424. Professor FITZGERALD.—Needlework?—Of course, needlework, universally and admirably done.

5425. CHAIRMAN.—Done on educational lines?—Yes, worked by demonstration lessons, the blackboard and demonstration frames in free use also. I think that in Lambeth we have been rather ambitious folks; there has been a good deal of life there; the teachers are above the average. I should say two-thirds at least of our girls' schools take up some kind of kindergarten occupation, some continuation of it as begun in the infants' school.

5426. You have had experience of Mr. Bevis' system?—I have seen it in Birmingham, but it has not been taken up in London; I rather try, as far as it is loyal on the part of an inspector, to press it on my own district; (one has to do it judiciously); the theoretical lines of the system struck me as so pretty; but it has not held its own.

5427. It would serve to fill up the gap?—Admirably; but with us there was a general feeling, and I am rather a convert to it, that Mr. Bevis' system admirable as it is, perhaps lacks a little of the more artistic and cultural side of that training, and our teachers have all leant to that line of opinion and have brought in colour, and perhaps beauty of form, more than Mr. Bevis' system would bring it in.

5428. Do you think this modification could be grafted on to Mr. Bevis' system, or would it require a totally new departure?—Not totally new; the principles on which Mr. Bevis works you can work in colour, paper-folding and paper-cutting and pattern making; you can work all that by the blackboard.

5429. Mr. Bevis had not introduced anything of colour at the stage you had experience of: he has now;

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—I thought he would; I am very glad to hear that, because in that case it will be an exceedingly successful system. Not painting in brush-work, you don't mean that?

5430. We saw some crayon colouring, and also coloured paper and paper-folding and the subsequent arranging of patterns, all apparently very valuable for children. Now as to drawing. Drawing in England is taught on scientific lines throughout?—Yes.

5431. In your memorandum you assume it is so taught in Ireland, but it is hardly taught at all in Ireland, it is not a compulsory subject?—I am sorry for that.

5432. You think we ought to recommend that drawing should be made compulsory in schools?—I do; only, put an exception as we have in England; there are still a very few cases of country parishes where I think an Inspector uses his discretion and certifies to the Department that it is impossible to have drawing taught in that parish.

5433. In Ireland the number of schools in which drawing is taught is 1,421 out of 8,500?—It is, then, as your Grace put it, not a general thing; but it is essential to the success of the boys' training in woodwork.

5434. Professor **Fitzgerald**.—That is, they should do freehand and mechanical drawing?—One would like them to do freehand as well, but mechanical drawing would be very useful.

5435. In Ireland we have freehand, but nothing of mechanical drawing?—You have, I suppose, on your minutes the Science and Art Department's syllabus for teaching drawing and the alternative syllabus. They are both very interesting; the second syllabus would not lend itself as a help towards manual training in woodwork; it is more artistic, it is free drawing of curves from the very beginning, but their original syllabus, which is more mathematical, is admirably adapted for practical use in the carpentry work.

5436. **Chairman**.—You spoke of exceptional cases; on what ground are classes exempt from this teaching?—There are very few now: but for the first year or two or three after drawing was made compulsory with us, it would have struck very hard upon a country parish that had a teacher of considerable power under the lines of previous years, if he had to be trained in drawing as a condition for continuing his grants.

5437. Was anything done to instruct these teachers?—Yes, many teachers who were near enough to towns to obtain instruction got instruction, and now the number that cannot teach drawing is very small.

5438. Did you try the system of peripatetic teaching of drawing?—Yes, they did a little in some parts; but our country parishes do not co-operate perhaps quite as easily as they will when this new Bill, with its Associations, becomes law.

5439. Have you any experience of dairy work as a branch of practical teaching in schools?—Very little; I don't think it is common even in dairy districts.

5440. Cottage gardening may be taught upon scientific lines, I suppose?—It is being very little taken up in the country. I don't know any single parish in my division that is taking it up on Code lines, though I know several cases where a little gardening is done.

5441. What class of teachers do you consider best for school woodwork, the ordinary school teachers or artizans of the better type?—The artizans of the better type that have had special training for it and passed certain special examinations are almost invariably in charge of it in London; but for the country I suppose we must depend a good deal, even in the future, upon the energy of our ordinary certificated teachers who will add that to their other extras.

5442. Professor **Fitzgerald**.—What inducement would you give to the teachers to do so—do you mean his professional enthusiasm is not enough?—I think there might be some payment; at least one would expect some assistance to be given to them towards attending at centres in the country. There might be some expense connected with travelling; but the enthusiasm of our teachers is beyond praise.

5443. Has that increased since the change in the practice of inspection?—If I answer you for London I shall be a little outside your present lines, because in London none of this work is done by our ordinary teachers. The whole of the work is done by specially trained, very intelligent, very superior artizans, but of course the spread of the movement in London—take my district—has been immensely helped by the new system of inspection.

5444. **Chairman**.—Have you seen the last issued report of the London Joint Committee on Manual Training—the fourth report—it is not over favourable. It says that a great deal of the answering seemed to show that the boys had merely written down things that they had committed to memory, producing, in some cases, "senseless sentences," and answering "in a manner that leads one to suppose that the result of the lesson has not been of any real service." This refers to children taught this manual system in London. The report then goes on to say that the object of the teaching seems to be to produce experts in timber; that the attention of the children is directed to matters that are not perhaps educational; that even an elementary knowledge of mensuration or geometrical drawing is conspicuous by its absence; and that there is no power of writing decent English in a readable fashion. And it gives a number of extraordinary specimens of spelling which, the report says, may only commend themselves to Mr. Pitman. They hold an examination?—I have not seen that report.

5445. This refers to an examination held by Mr. Sidney Wills, I take it, for this Joint Committee?—Whom were they examining, and what was the object of the examination—for they examine for diplomas for teaching—or was that for a scholarship—surely that was not the examination of any one school?

5446. I cannot say. Why do you ask?—Because to me that is absolutely foreign to the observable results at any of thirty or forty centres I should speak of from experience.

5447. Allow me to read further: "I should add that the extracts just given are by no means from papers of younger boys; several of them are fourteen or fifteen years of age, and they are in standard 6 or 7." Mr. Barter himself puts it that the instructors only pick out their best boys?—I should meet that by a rather strong remark as to examination being distinctly the wrong process by which to test the value of manual training at woodwork centres. It should not be tested by a written examination, except so far as you are forced to do it. It should be tested by an examination of the work done by the boys at the centre under your eyes. The examiner seems to me to have ceased to be an examiner of woodwork; he has become an examiner of spelling

5448. Don't suppose I wish to see it subjected to this process of examination, quite the contrary?—Yes, but that is the effect that it produced. It is quite possible that some of the instructors might spell according to Mr. Pitman's system, but still they might teach woodwork admirably.

5449. Professor **Fitzgerald**.—Would not that rather tend to show that the boys who were good at woodwork might be bad at other subjects?

Chairman.—I think it goes to show that they were taught not out of books, but by oral teaching.

Witness.—I have known several dull boys who happily do excel at the woodwork classes, and it is one of the strong arguments in favour of woodwork that it gives a chance to a boy whose intellect is dull.

5450. **Chairman**.—You consider that the abandonment of the system of the individual examination of the pupils and the introduction of the new system is a decided improvement?—Yes.

5451. I have read your report in the blue book of last year, and you state this, I think, without any qualification?—Without any.

5452. And you find that is the opinion of your

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experienced inspectors?—Yes, and even of those who at first doubted, because amongst officials you will always find the natural conservatism of every expert is very strong, but now they are coming round and most of my colleagues in the division that I am responsible for are enthusiastic for the new system, and are distinctly of opinion that it has altered the nature of the teaching most favourably.

5453. You quote at length from Mr. Airey, a gentleman whom we met at Birmingham; he does not speak much more favourably of it than Mr. Tremenheere from Reading. You don't consider that a mistake was made when the system of payment by results was introduced by Mr. Lowe?—At that date, no.

5454. Do you not think it was then a most useful change?—I think it was necessary at that date.

5455. Do you not think that it was the introduction of that system at that particular time that enabled the educational system of England to be advanced to its present state of efficiency?—I certainly do. We were so wanting in trained teachers at that time, and even when we began to train they had to come without experience, so that practically the slavish line of our Code was the syllabus of their teaching.

5456. The old results system was then necessary for them?—Yes, absolutely, thirty years ago.

5457. I met with a comparison the other day, an inefficient teacher was compared to a broken down horse going between the shafts of a cab; he is kept within very tight lines, but at the same time he is kept on his legs?—It was absolutely essential then, but equally essential that it should be allowed to develop.

5458. It passed from that rudimentary stage to the present system of free inspection, but not immediately?—No, by three or four stages.

5459. Do you consider it was well that the system passed through those stages and not at one bound into the present freedom?—I think we might have possibly omitted one stage and passed more rapidly than we did to "sample examination" in reading, writing, and arithmetic.

5460. The first stage is what we still have in Ireland, individual examination and payment by results?—Yes, except that in Ireland you have individual examination extended beyond, I believe, reading, writing, and arithmetic.

5461. To everything?—At our earlier stages of educational life we never had anything but reading, writing, and arithmetic given to us. When I joined the service in 1866, my official duties—I had no assistant then, he was not needed—was to examine individually in reading, writing, and arithmetic, and nothing else. We pressed from that day onwards, most of us, the importance if you learn reading of learning to read something, ought they not to read some geography or some history, ought we to ignore altogether subject matter; so by degrees we added geography to the reading, writing, and arithmetic, which almost from the first we took as a matter of class examination and not individual examination.

5462. What was the next stage?—The next stage, after having taken class subjects with individual examination in reading, writing, and arithmetic, the next stage was to sample.

5463. In the case of a class subject the grant was made on the general merit of the class, but the inspector examined individually?—In reading, writing, and arithmetic, not in geography, except of course that you cannot examine a class without touching the individual, but no individual record was made.

5464. Well, the second stage?—Was sampling the individual reading, arithmetic, and writing, to save time.

5465. Were the samples so taken that every child in the school was examined in something?—Not necessarily, but we endeavoured to do that. Yes, every child was examined in something.

5466. You spoke of some stages that might have been omitted in the development?—I think it would have been better if we had begun to sample many years before we did.

5467. But would you have omitted that before passing on to the present?—Oh, yes, I would have sampled from the first. I think, if I had been Mr. Lowe, I would have made a sampling mode.

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5466. We, in Ireland, are still in the first stage. Do you think it would be a safe thing for us to pass at one bound into the freedom you now have in England even without passing through a sample stage?—Yes, I think, perfectly safe.

5469. Captain SHAW.—This Report, the fourth Report of the London Joint Committee on Manual Training, appears to apply to the examination of some 113 children in special centres established by this Committee; it is not on the teaching of the London School Board throughout?—Isolated scholars from some voluntary schools probably and a few Board schools.

5470. Rev. Dr. EVANS.—Is there any possibility of the Inspector's judgment in regard to manual instruction being influenced by what is popular in the district?—Do you mean that the inspector's influence will tend to bring forward that manual instruction?

5471. Oh, no, I only wanted to know if the inspector's mind is at all influenced by what is popular in his own district?—Well, it depends upon what you mean by popular: would you describe woodwork as popular in my district? It is almost universal, so of course my mind is influenced by it.

5472. We have not seen any inspectors but those in the districts or localities where manual instruction has been going on; we have not had any inspector under examination from a district where it has not been adopted, and we do not know what opinion he might have about it?—He would not have any, because as a scientific man he would have no basis on which to form an opinion.

5473. We are where we started. I want to know whether an inspector's mind is likely to be influenced by a prejudice against or a predisposition in favour of a subject by reason of its exclusion or adoption by the managers of his district?—As a rule I should say not. I should say our minds were, as a rule, open. Few have the expert knowledge that Mr. Rooper has on kindergarten occupations and gifts and manual work; and therefore so few of us have any initial prejudice in favour of woodwork or laundry or cookery that I should be disposed to answer your question "no." I came to this work with an absolutely open mind; it was dawning when I was at Reading, but I never dreamed of forcing it in, because we were under the old system of examination.

5474. If the value of manual instruction be so great, can you tell us why it is that the training colleges do not prepare for it?—They do a little at the training colleges for girls, cookery, I fancy; of course I am limited in my training college experience. There is an admirable cookery school at Stockwell, the training college for the British and Foreign Society, and I have heard admirable cookery lessons given there for their certificates, for eight or ten years past, but I fancy in woodwork very little is being done.

5475. Who is the inspector in charge of the training college at Westminster?—Mr. Oakley or Mr Scott Coward.

5476. And I take it that the training colleges would be likely to adopt anything that was required by the teachers?—With time, but it will always take time because a training college is an institution which, unless it is connected with some very active centre of educational interest, would be slow to look for new lines of training; possibly it would be difficult at first in some of our training colleges for men to find time and place in their time-table for the woodwork instruction, but I feel quite sure that it is coming in the future, that the training colleges will do it; I am not at all surprised that they have not done it yet.

5477. You have told his Grace that you think it would not have been possible to introduce and work this manual training under the old system of examination by result?—Not as we have done it; it could only be done by the limited few schools that have an

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exceptionally strong staff, and work under exceptionably favourable circumstances.

5478. Chairman.—Is not the work of the training colleges still tested by a system of individual examinations?—In part, yes; each individual student has to pass his examination for a certificate; of course the practising schools, you know, are not.

5479. Rev. Dr. Evans.—After the students of the training colleges go out at the close of the second year, are they under any kind of probation for any period afterwards in the schools?—Yes; before the actual issue of the parchment certificate.

5480. How long is that probation?—Two years or one and a half, two visits by the inspector.

5481. Is there any bonus coming to the training college as the result of the passing in two years?—Yes, I think you will find in the Code the payment for the training of that student will be paid, if not altogether, in large part when the issue of the certificate is sanctioned by the recommendation of the inspector who inspected him in his school.

5482. Chairman.—That is a payment into the "credit fund," not to the managers of the college?—Yes; to the college.

5483. Rev. Dr. Evans.—It is the power of the teacher to succeed in school keeping and school work that leads to the giving of the diploma, not merely what was learned in the training colleges?—Even if that teacher was in charge of a school and receiving Government grants, if after two years the inspector of that school were to say "I don't think the conduct of this school is sufficiently able to justify me in issuing the parchment certificate," that would delay the payment of the money to the college perhaps.

5484. In a system of results would it be possible to introduce manual instruction without attaching a fee to go to the teacher, or if a fee were attached to it would it make it likely to run more easily?—I should think it would directly. You mean if an offer were made by the Department to the training colleges to make a little extra allowance per student who succeeded in passing an expert examination in woodwork, that would certainly encourage the training colleges at once.

5485. Where you had your teachers, almost the whole body of them, without any skill in this manual training, how would you propose to introduce manual instruction in the country?—I suppose much as it was done in Berkshire, my old district, which is still under my supervision as chief inspector. A very able and energetic master in one of the Reading Board schools, Mr. Andrews, set himself to work, I suppose owing to his own innate energy and enthusiasm, set himself to work to study this English form of woodwork until he became, as I suppose Mr. Barter made himself on a still greater scale, a thorough expert, and then he became a centre of training for others; so that now in Reading that school of Mr. Andrews has become a centre from which went forth a number of trained and competent certificated teachers, but in London we have not used that plan.

5486. Have you ever visited the Westminster College?—Four or five times.

5487. Have you seen the manual work going on there?—No, never.

5488. We visited it yesterday, and it seemed to be going on with great interest and success. The work was done entirely by themselves; it was taken up with great enthusiasm and in a very cheap way?—That does not surprise me, because there is an immense amount of professional enthusiasm alive there. You asked the question whether a grant to each person for passing in a subject encouraged the taking up of that subject. I was not thinking of Westminster or Stockwell, but of outlying training colleges, and they would require some encouragement: Westminster does not.

5489. Captain Shaw.—The metal working shop you mentioned at Marylebone, is not that a voluntary school?—It is supported I think by the joint Guilds, it is quite outside my district, but it is not the unaided effort of the voluntary schools but of this joint committee, it has come to very little except in its own neighbourhood; we have not taken up metalwork in London. I daresay you saw three times as much metal work in Birmingham as we could show in London: it does not seem to lead to anything in after-life and does not familiarise you with ordinary tools.

5490. As to teaching manual work in the fourth standard, what is the average age of a child in the fourth standard?—It ought to be ten, but I think if you will say that the average age of the child is eleven you will be nearer the mark: certainly above ten.

5491. Do you think that children at that age are capable of using tools, are they sufficiently physically developed?—Yes, apparently so, because I rather looked into that point when I was with that fourth standard class in the woodwork centre the day before yesterday; you see the tools are not full men's size. At our Board centres the weight and size of the tools are to a certain extent adapted to a child's size and strength, and also they don't use all the tools at first. For instance, those fourth standard boys will not do much more than draw a saw: for the first six months their progress will be slow, and they want a good deal of teaching in drawing, I think I said before in the memorandum I sent up. If I had my own way, and the world had adapted itself to my own way, I would not let standard four go to manual training in the woodwork, only standard five, and evidently the Department is with me, but so many of our children leave school at standard four that if we were to shut out standard four we would shut out a good many children to whom this training would be most useful.

5492. Professor Fitzgerald.—When I was eleven I went through a course of lessons in a carpenter's shop, and I distinctly recollect doing tenon work, and that is not an easy form?—It is not; if you take sloping tenon work it is very difficult; but you may have a special gift.

5493. Captain Shaw.—The other means of teaching hand and eye training in other departments is paid for by the Department as a suitable occupation; it can be taken as a class subject and paid for as a suitable occupation?—Yes.

5494. Chairman.—Is that the principle on which you teach woodwork in the fourth standard?—We can in a school say that instead of taking for our two class subjects geography and elementary science, we shall take geography and varied occupations: then it would be paid for as if geography, grammar, or elementary science; but in my experience it is very rare indeed. I don't know in all my district more than one school that has taken varied occupations as a class subject for money grants.

5495. It was contemplated in the Education Code after 1896, object lessons and suitable occupations were put as the first class subject?—But did that ever appear; was it not that they should be taken in standards one, two, and three, leaving it open whether they should be the class subject? Four years ago it was pressed that varied occupations should at a certain date be demanded in the first, second, and third standards of all classes; then we had a meeting of chief inspectors, who seemed unanimously of opinion that that rule was quite easy to work in towns but exceedingly difficult to work in all unfavourably situated schools and in the country generally, and so it was dropped, but I have no recollection that varied occupations and object lessons ever quite assumed the form of the compulsory first subject; object lessons do now, from a certain date: but the kindergarten occupations that for a time were ordered to be a compulsory subject in the lower standard teaching of all schools (without offering any money for them), we have continued without any pressure; in my district four-fifths of the schools take varied occupations in 1st, 2nd, and 3rd, without any demand from the Department and receiving no money for it.

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5496. They can get payment in every standard for doing manual work, or hand and eye, except in the 4th; the Education Department pays up to the 3rd, and the Science and Arts starts in the 5th?—I am showing that it does not matter, that according to my experience none of our people avail themselves of the chance of getting this money for 1st, 2nd or 3rd, therefore there is no hardship in not getting it for the 4th.

5497. Professor FITZGERALD.—They complained in Birmingham?—They have taken up the subject so vigorously, as they take up most things in Birmingham.

5498. Captain SHAW.—Then we have had very little about object lessons; perhaps you would give us your opinion of their utility?—Before one can give you a clear opinion as to the value of object lessons one ought to be clear in one's definition of what you mean by object lessons, because the object lessons as given in England up to seven or eight years ago were not from a strictly scientific point of view object lessons, they were almost everywhere general information lessons, lessons endeavouring to fill the minds even of infants, to my mind unwholesomely, with answers to a great number of questions rather within the ken of children, but still a strain on their memory, I should have said, at that age. Seven, eight, ten, or twenty years ago people would bring to me, as inspector, a list of object lessons. I would say—"Take them in one of your object lessons yourself and let me see how they follow you." The teacher would say—"I would rather you would see yourself how much I have been able to teach them out of this list." So the teacher would generally wish that I should take a list of object lessons and ask a question or two about all of them: those lessons were straining the memory.

5499. CHAIRMAN.—The children merely gave back what they received?—It has been one of the most difficult things to get the teachers to take the more purely scientific view of object lessons.

5500. Professor FITZGERALD.—To train the children to observe?—To train the children to observe and ask questions and get answers out of the teacher. Of course a good deal would remain on their memories, but not by direct conscious effort. I had difficulty at first to induce teachers to let the objects upon which the object lesson teaching of the year had been conducted appear before us on the day of the annual examination, because as two or three of them in their sweet naïve excess of honesty, said to me—"Do you think it would be quite fair for the children to see the object." The whole conception of the object lesson was absent.

5501. Captain SHAW.—This circular sent out on 25th June, 1895, by the Secretary (Appendix IX., Revised Instructions to Her Majesty's Inspectors) contains pretty fully the scheme setting forth the object of the object lessons?—Yes, and gives schemes: it is one of the finest productions that ever left our Department: it is almost a pamphlet rather than a circular, and many of our best scientific men took part in it. It is full of the exposition of object lessons properly conceived. But, we that have hearts as well as enthusiasm, have to be exceedingly considerate still with teachers, and if they continue to teach them on the old lines as a means of accumulating a mass of most useful information, we must not condemn the teachers, and we do not.

5502. As regards training colleges, there is an annual examination at the end of each year?—Yes

5503. And really the object of the teacher is to get through this examination?—It is a very considerable object.

5504. That rather detracts from his devoting attention to methods of teaching?—Ah, but the college is under certain rules by which the teacher is obliged to spend inside the practising school so many hours per year. I don't mind admitting that the number of hours is not nearly enough, but it is as much as they say they can afford; but he has to spend a considerable number of hours in the practising school teaching children under criticism.

5505. Professor FITZGERALD.—Do you think that teaching of children is an important part?—Perhaps the most important part of his training.

5506. Do they get any credit for that at the final examination?—Oh, yes; we give them marks for it. The training college inspectors cannot do it alone, so they look to us outsiders to join with them in the matter. Every individual gives a lesson before an inspector, for marks. It is, of course, a little artificial. The nervous patient perhaps does not get all the marks that, if he were not nervous, he would deserve, but on the whole it is not amiss, and it sets up most enthusiastic efforts in preparing illustrations for lessons. I have seen admirably illustrated lessons. I have seen electric lessons given with a little dynamo of the teacher's own making. There is a great deal very well done at the training colleges in the way of practically teaching the teachers how to teach a living class, but I think it would be better if there were three or four times as much time spent on it

5507. Professor Armstrong gave us to understand that they spent their whole time getting certificates and some label of some sort which would raise their commercial value when they applied to a manager for a position?—That was not your opinion when you saw them at Westminster, was it? I don't think that is largely the case.

5508. The multiplication of certificates was one of the things he rather objected to; he thought it would be better to have some one general certificate?—They multiply their certificates for this, that, and the other. I think they multiply them more after having left the training college than during their training college time. The multiplication of what you call certificates—that is, diplomas for special sciences and subjects—is rather limited to the School Board teachers, who hope to improve their chances of promotion by accumulating for what they call form 40 a number of extras, but I don't think that affects the value of the training college career.

5509. If taught manual work in the training colleges do you think it would detract from the general culture which they obtain there?—I think they ought to enter the training colleges sufficiently well taught and educated in ordinary literary and mathematical culture to allow of it. Probably the training college authorities might meet what I say by remarking that that is not the case.

5510. In future it will be easier, because you will have children partly trained in the schools?—Everything will be easier as time goes on. Those that don't get the best raw material to train—that are doing their work under difficulties—I think they would tell you "We cannot do it yet; we have so much to teach them of ordinary, geographical, historical, and mathematical knowledge."

5511. Captain SHAW.—As regards your conference, perhaps you will give us a little information on that point?—Do you mean occasional conferences of Chief Inspectors called by the vice-president on a special point? They are only occasional; they happen simply when the Department finds some special point thrust upon its attention upon which it is desired to get the feeling of the whole country, as, for instance, when, two or three months ago, the Department wanted to thoroughly ventilate the question of transferring the inspection of drawing from the Science and Art Department to our Department before coming to any conclusion. I don't know what conclusion the Department intend to come to: they called a conference so that Chief Inspectors, coming from all over England, might give the Department their idea as to the prevailing sense of inspectors and educationalists in every part of the country, but these are not cases of frequent occurrence. We have only one regular conference of Chief Inspectors: at Easter each Chief Inspector for every division calls together the district inspectors of his division and submits to them an agenda paper which has been prepared by the Department in correspondence with all the Chief Inspectors, and through them with all the inspectors over the kingdom, but the Department

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selects the points most valuable on that. There are two or three hours' conference on that agenda paper. And then, a month after that, when the Department has received all these agenda papers, those Chief Inspectors assemble for an annual conference with either the Vice-President, or the Secretary in his absence, and go over the whole of that agenda, that is revise the opinions of all the different divisional inspectors in the country, by which means, of course, the Department can get fairly at the mind of the inspectors over the whole country.

5512. Professor FITZGERALD.—Is there any way by which the teachers' opinions can ever be got at?—Oh, yes, can you not get at them? Some people in England have thought the teachers are too much in the habit of communicating either to the Department or the public their opinions.

5513. Captain SHAW.—But the inspector knows the opinion of every teacher in his district to a great extent?—To a great extent, and the National Union of Teachers have district associations that meet frequently.

5514. Professor FITZGERALD.—They help to find out the opinion of the teachers?—They help to make it known and perhaps find it out.

5515. It is not the noisy members only who are heard?—I am not speaking of the Central Executive of the National Union, which, by the bye, does not consist of noisy members, but of the twelve members foremost in their profession; but in a district like Lambeth you will have a meeting of all the teachers, and I value their opinion very much; and when something new appears in the Code I go down to one of the quarterly meetings, and always find a hearty welcome; I say what I have to say, and ask what they have to say, and we speak freely and get to understand one another. I think the teachers have ample means of discussing educational points through the Central Committee of their National Union of Teachers in part, but for practical purposes even better through the District Associations of the National Union of Teachers, where you can get into more free persanal touch with the average teacher.

5516. CHAIRMAN.—Have you in England what we have in Ireland, a system of sending out from the Central Teachers' Organization suggestions of common resolutions which are then passed at local meetings all over the country?—Well, I suppose such things do happen in England.

5517. Wherever that prevails, you do not always get the real opinion of the local associations?—Those are not the opinions to which I was referring as those I value so much, but I suppose you admit yourself that occasionally such things are necessary, when for instance a strong protest is necessary against a particular grievance, there is hardly any other way open for teachers, and it rights itself in time. If right and justice is not on their side it comes to naught, and if they have right and justice on their side I suppose we don't grudge them this action.

5518. I mean that you have not the same opportunity of getting at the real opinion of the teachers where a system of that sort prevails to a large extent?—No, where I get at the opinion of the teachers is mainly at their district associations.

5519. Not merely through the common resolutions?—No, although I admit such common resolutions now and then to be valuable.

5520. We were told that since the introduction of the new system of inspection there is a much healthier tone at the meetings of the teachers, that they now discuss the proper business of teachers, educational methods and systems of instruction, rather than their own personal grievances?—That is very much my own experience down in Lambeth, but I think our Lambeth people had begun to move in that direction before the change.

5521. And have you noticed this general change?—Yes, I think the teachers appreciate that the teachers and Inspectors are placed on happier relations.

5522. Captain SHAW.—Do you consider physical exercise an important part of school training?—Yes, very, it is such a rest and relief; and it is so healthy it develops chest width and freedom of arm and regular movements; it is distinctly healthy and distinctly restful, and very materially helps discipline, but I think it is quite possible to spend more time than is expedient on physical exercises.

5523. In the Instructions to Inspectors it says, "the best form of physical exercise is a healthy game which will satisfy the conditions of the Code." Would you give us an example of such a game?—For infant children?

5524. Well, I mean for the older children?—Are you quite convinced in your mind that that paragraph refers to the bigger ones. In actual fact with us in London that part of the instruction cannot very well be brought into operation: our physical exercises assume some form or another of drill. It may be what is called Swedish drill, it may be military drill, it very often with girls is musical drill. I should conceive you might in the country organise—only you cannot bring a whole school into any game—but you could organize some admirable teaching through lawn tennis well organised. It is conceivable to me, that on a small scale it can be done.

5525. CHAIRMAN.—Is Swedish drill as good in its way as Swedish Sloyd?—I think our English modifications of the Swedish drill are as good in their way as the English modifications of the Sloyd; I am very much devoted to the English modification of the Sloyd.

5526. You take the Swedish drill as the basis?—To a great extent, but I have been always, and as I grow older I become more so, in favour of leaving the terms by which you define these games and drills as elastic as possible, in what Mr. Balfour would call a fluid form; if you don't, you must hamper a teacher who did not see his way quite to proceed on the lines laid down.

5527. Professor FITZGERALD.—You have bad experience of country schools?—Yes, for nineteen years.

5528. And the agricultural teaching in them?—Is worth very little, and is very rare.

5529. Have you seen the Code that has been issued for the French schools?—I have not seen it, but I have heard of it, and I believe it is very excellently planned.

5530. You approve of its lines?—Yes; I should like to have half an hour's study of them; they seem rather horticultural than agricultural.

5531. It is the basis of all biological culture of plants, it is a set of experiments to be conducted?—This tells me the one point to which I attach great importance. In a conversation with Mr. Acland, we agreed that the less we talk of agriculture in schools, and the more we talk of horticulture and gardening the better.

5532. In the manual training work there is none of the describing by the boys of what they have done or seen, the way there is in the science teaching?—Not quite, except this, that as manual training work is carried out in London it grows out of the pencil. they have to draw everything they are going to cut.

5532A. There is no describing by themselves in literary language of what they have done?—No, but there are such admirable openings otherwise. I was in a school this morning before I came to you and I found one of the latest novelties the head teacher had introduced was setting up before his class a picture or, better still, two pictures rather alike each other but a little different, and just assisting them to observe the two pictures for five minutes, "Now we will put away this picture and write and tell me what you can of the pictures:" there you have composition in full practical operation.

5533. That was a novelty?—That was a novelty in that particular school, but I very often have found the children, not only in the Board schools, but I have in my mind at this moment, a voluntary school in Stockwell, where they go under Article 12 of our Code to visit places of interest, the Abbey, a museum, or a factory, and they afterwards next day write out a

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composition exercise in describing them. I have seen some rather elaborate exercises describing particular pictures in the National Gallery quite remarkably interesting as criticisms.

5534. Getting boys to write out what they do would have prevented a large number of the adverse criticisms that are made in one of the reports here (the general run of the report is favourable). "If the boys would only write intelligently what they themselves have seen and done, the work would be of a far higher quality." This makes me think that in that manual training there is not much writing?—I don't think there will be much in connection with woodwork, but there will be an immense amount done in the way of writing out impressions of things you have looked at or passed through, and I think we are every month doing more and more in that way since the introduction of the new system.

5535. And you consider that is a valuable part?—Most valuable, we have loosed a great deal of anxious effort that was spending itself in abnormal strains over spelling, and those efforts are all being loosed in favour of composition exercises which involve spelling, and of course spelling of words much more natural to the children than the inflated words in the old days of the stilted examinations from Readers.

5536. CHAIRMAN.—Words which the children would never have occasion to use?—Which they could spell remarkably well, but in after life would never have occasion to spell: they did not spell their own words under the old system and those will perpetually come in under this composition training.

5537. Mr. REDINGTON.—Have you not dictation still?—Yes, but under the old system, all our progress in dictation was done by sheer force of practice, you went on practising until you achieved wonderful results: now we learn by teaching. Now, I stand and hear in schools lessons given before the dictation exercise, on the more difficult words that will be met with in the dictation: such things were unknown in my previous years. We had our pieces in which certain words occurred that seemed to strike the master or the inspector (for we were both more or less equal sinners), as fine exercises for the spelling powers of the lad; but there was very little real teaching.

5538. How did the examination at the end of the year prevent the teacher from pursuing this course of teaching?—Because on his mind all through the year lay the exact letter of the examination on which his character for the year was to be based, the letter or form which that examination would take a few months hence or a few weeks hence and his aim was to teach up to that letter or down to it. For instance, then they never set less than four sums because our habit as inspectors was to examine on four sums and hope that not less than two of them would come out right, so that instead of using your blackboard freely and perhaps only teaching one sum with certain variations springing out of it, the blackboard used to be prepared with four sums, perhaps twice four, an A set and B set, so that they might be practising for the examination day and so prevent the loss of character and loss of grant.

5539. Is there any danger that the teaching now may not be as individual as before?—I think not, for we get the teachers to keep, far more than they did before, individual records of the children's progress; now you cannot write quarterly an individual record of the children in your class and neglect the individual.

5540. So you make the teacher examine?—We will say the head teacher because he is ultimately responsible, but in the London district the assistant teachers are certificated themselves, and in many cases the certificated class teacher with sixty or seventy children has a record of his own.

5541. Do I understand that there is a record of four examinations in the year?—There is; of three or four examinations.

5542. If examinations are so bad is not that a bad thing?—Not conducted by the head teacher in his own school.

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5543. If it is a good thing for the head master to hold an examination of the pupils, why should it be so bad for the officer of the Department to examine?—Ah, but the head teacher examines every two or three months on what has been done in the two or three months preceding, but in our old days we said "Prepare for twelve months and we will come in twelve months and examine you:" that was too long a piece to work the children for. The head master ought to examine especially the classes in the school that I call the promotion classes, the 5th, 4th, 3rd, and 2nd: the object of the examination there is to see whether they are ripe for promotion.

5544. Professor FITZGERALD.—Do you not think that an examination of the class by the teacher is very different from an examination of the class by a stranger?—Very much, but I see yet more difference in the fact that the stranger comes in as a stranger with an interval of twelve months.

5545. Captain SHAW.—And also to award money payments?—Yes, and the difficulty comes out more when you remember that the letter of the examination he was going to apply was not six months' work to the average child; therefore for a good average child six months were spent in marking time.

5546. Professor FITZGERALD.—Do you not think that when a teacher prepares for another person's examination the object is to make the child appear to know as much as possible?—Yes.

5547. But there is no temptation to a teacher to deceive himself as an examiner?—I think there is great force in what you say.

5548. Mr. REDINGTON.—If the examiner who is a stranger is a competent teacher, could he not discover the deception?—It is not quite deception.

5549. Professor FITZGERALD.—Do you agree with Matthew Arnold that no examiner can be sufficiently ingenious to prevent a teacher making the appearance of learning without the reality?—It would be a waste of teaching power to do that, and our teachers would be too high-minded to stoop to that, but up to a certain point the teacher would consider it his conscientious duty to give to his class the utmost power he could to make a display that would operate favourably on the mind of the examining inspector. I think that perhaps in comparing the two systems that question of promotion ought to be very much more thought of than has been the case, the annual examination wanted in the 5th, 4th, 3rd, and 2nd class of the school will be an examination tending to show are they fit to be moved on. You don't want an outsider to say that.

5550. Mr. REDINGTON.—Do you think that an examination, whether conducted by an outsider or by the teacher, is necessary as a test of the value of the teaching?—You cannot inspect without some examination.

5551. Under the present system do you examine the school as thoroughly as before?—Quite as thoroughly, but on a different process.

5552. Do you see every class taught every subject?—No, it is needless to see every class in a large school of 400 taught every subject; if I see in three classes out of six that the geography is taught not by the way of lists of capes or lists of openings, but that it is taught from a human point of view, the points of the races brought out, the climate and products and commerce and physical state of things; if I see that in three classes about the bottom, middle, and top of the school, containing seven or eight classes, I know that is the way they teach geography.

5553. But every class has a different teacher?—But there is one head-master who holds the unities, and he can show me his term examinations of the classes that I did not see do their geography. "You did not see the 4th standard; I have my record the last time I took them in geography." I can soon tell from his general remarks whether it is being taught on the same wholesome lines.

5554. Am I right in saying that there is a certain payment made for geography per head of average

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attendance?—Yes, we have to decide whether it shall be a 2*s*. or a 1*s*. grant.

5555. Suppose you have examined half the classes in geography and have been unfavourably impressed and reduce the grant, may not the master complain that you ought to have examined the whole?—I would not reduce the grant upon the mere simple answering of three classes out of five to which you are referring; I would have my previous knowledge of that school to go back upon and see how they did their geography last year or the year before. "Warned last year." "Oh," I would say, "I won't examine any more; it is the same." It is now, I think, almost a written law with us that where those changes of grants are proposed by the Code, 2*s*. for well taught geography, 1*s*. 6*d*. for admirable discipline, 1*s*. for discipline that is not to be reproved as bad, where those differing grants come in, it is an unwritten rule with us that unless the case is most aggravated we should first act by warning. If for instance the geography struck me in three classes out of five or six as weak in its conception or method of teaching, and I had not seen any previous weakness the year before, and there had been no change of teacher, I would say, "I think for the continuation of the higher grant that the geography next year must be on very different lines from those I observe in such and such a class." It is my experience that with people possessed of a high aim in educational work a warning is very often nearly as useful an engine to the inspector as a money fine; I condition my remark by assuming the possession of a high aim. I have heard it stated that there exist in some parts of England—there are none no doubt in Ireland—some few people who are still so absolutely wanting in height of aim as to be only amenable to purse fines.

5556 What was the effect of the abolition of the examination system on the children? Do you think that they disliked the former annual examination or was it an incentive to them to work in order to get a good mark?—I think they work quite as well now and more intelligently, and I think that under the freer lines of teaching that the teachers have felt free to set up under our new system, the enjoyment of the class study is by a large percentage greater than the average enjoyment of class study before; I think the boy's or girl's life at school is 50 per cent. happier from day to day now than it was in the days of our annual examination.

5557. Do they work as hard?—Yes, and much more intelligently with ever so much more pleasure and interest Your question was did the children miss the annual examination. Yes, it was fun to them, they liked the excitement, and a stranger being about the place: it was the teachers that suffered. And where the inspectors are genial, (there are a few exceptions among English inspectors; there are said to be some that are perhaps a little wanting in sympathy of manner, that are said to frighten children; I hardly know them myself; with you they will be of course non-existent), but assuming an inspector to be pleasant with children, children liked the examination day; it was an excitement in the country, almost the only excitement the poor things had

5558. Was it an incentive to work during the year that they might get a good mark at the examination?—No, I am thinking of my own childhood. I don't think that children are able to work so far ahead from incentive.

5559. Is it not found to be so in schools of a higher character?—Yes, later in life with scholarships depending upon it.

5560. Don't they like to be first in the class?—Oh, yes, but we did not tell them who was first, but they had the comparatively third or fourth rate ambition of not failing, or getting a kind word from the Inspector in the oral examination. Now we commonly see in our schools a list in the class room as we enter it of the children in the order taken by the head master's examination, so that they have that still.

5561. CHAIRMAN.—The emulation comes in still?—Yes, as much as ever; the only point the children have lost is they have lost the annual excitement, but the daily gain of happiness in their teaching is almost indescribable.

5562. Professor FITZGERALD.—Have you found that an inspector coming from Scotland to children in the South of England found it difficult to understand them?—No, I should think not; there are one or two amongst us that answer your description. One of our most popular chief inspectors—he was most popular with children—came from Scotland, and I quite believe from his tongue he came from there. I think sometimes with a teacher coming straight from Scotland just for a few weeks, it gives a little trouble to our London children to quite follow him, but only for a short time: they very soon get over it.

5563. Captain SHAW.—Would you favour any sort of "leaving examination"?—Until this system had set in I would have said "No," but now I would rather favour a very liberally conceived and not a narrowly applied "leaving examination" of some kind. I have rather changed my opinion on that. I don't think we needed it formerly, as we were over-examined. But under this system I should rather favour some kind of very carefully applied general examination for an Honour Leaving Certificate.

5564. CHAIRMAN.—In your system of examination were all the children in the school liable to be examined, or only those who had made a certain number of attendances?—For several years past, all.

5565. With us in Ireland, as results are not payable except for children who have made 100 attendances, there is no results examination of the others, so to a large extent they escape the influence of the inspector?—And with us they did up to comparatively recently.

5566. Were those children who attended irregularly exempt from examination in the sample system?—They were specially marked in the sampling; they were bound to be present, but the inspector under the instructions should as far as possible not allow their case to weigh against the school; but those children that you are referring to are much more carefully inspected under our present system than they were under the examination, because what would be cruel to the school under the examination system becomes fair to the backward children.

5567. Now, as it is right we should not confine ourselves to only one side of the case, let me point out that in your general report you quote from an inspector of the Oxford district, Mr. Pickard, who says—"I must admit that a large number of managers and teachers have protested to me against this substitution of inspection for examination. They say that all the children regret the change, almost all the managers, and a very fair number of teachers." To what extent is that state of things exceptional?—Have I not answered that in my report? (Reading.) "But my own observation of many reading lessons, not only in Oxford but nearly everywhere, with the almost universal practice of simultaneous repetition by the classes, and with the almost entire absence of blackboard teaching, tells me plainly that if this be so, all the children, the many managers, and the very fair number of teachers are in the wrong, and that guidance and suggestion given at the new Code's visits without notice are gravely needed to improve methods and to raise ideals and aims." And my colleague's account of Oxfordshire reading lessons bears me out. He says—'The child so often employed in rural schools as teacher's help cannot be utilised for such subjects as grammar, geography, and arithmetic, but the fourth or fifth standard children are habitually employed in teaching or rather attempting to teach reading in the lower part of the schools. There now appears every reason to hope that reading will no longer be the untaught subject in the school.' And a little further on Mr. Pickard relates the following suggestive story regarding reading lessons:—"At a

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recent visit to a school under Art. 84 h two pupil teachers gave reading lessons during the course of the morning One of the two lessons was from a geographical reading book, the subject mattor treating of the mountains of England and Wales. It is difficult to believe, but that pupil teacher actually utilised a map of Africa, which happened to be immediately in front of his class, to illustrate his lesson. The other teacher evidently thought discretion was the better part of valour and said nothing, but allowed the children to mumble for half an hour and then the so-called reading lesson ended. The master was too busy to supervise or criticise. He was more than fully occupied with standards V., VI., and VII. in another part of the school. I am earnestly hoping that visits paid under Art 84 h will be the means of pointing out such absurdities and preventing their repetition in the future."

5567A. The change that has been made will set the inspectors free for far more useful work; in fact, for the proper work of an inspector?—Certainly.

Mr. C. A. BUCKMASTER, M.A., Senior Inspector of Schools under the Science and Art Department, examined.

Mr. C. A. Buckmaster, M.A.

5568. CHAIRMAN.—You are an inspector under the Science and Art Department?—I am one of the senior inspectors.

5569. In what subjects of the school work do you hold your inspections?—Our inspections differ very materially from the inspection of the Education Department, except in regard to the schools that are known to us as organised science schools; in those our methods of inspection are very much the same as theirs, that is to say, we sample the classes and come to the conclusion as to what grant should be awarded on the result of that sampling.

5570. The amount of the grant does not depend on the answering of each individual pupil?—It does in the case of all classes except the organised science schools.

5571. Professor FITZGERALD —When was that introduced?—The scheme was modified materially two years ago in that direction.

5572. CHAIRMAN.—Do you find that the teaching has been improved by the modification?—There is a certain improvement due to the greater freedom that is given to the schools, but we deal with students as a rule of somewhat older type than those in the elementary schools, and consequently the difference between inspection and examination does not press so much in the case of these older students; students in these organised science schools may be up to seventeen years of age, perhaps even older.

5573. Coming now to the ordinary elementary schools?—The only work we have to do with them is as regards drawing and manual instruction; the drawing can be taken in all stages or classes of elementary schools, manual instruction only in the upper standards.

5574. Drawing enters into the kindergarten only in a very rudimentary form, and probably does not come under your inspection?—Schools have the option if they choose of putting in children even in the infant departments for drawing, but they need not. It becomes compulsory in standard 1 in boys' schools.

5575. To what extent is drawing taught in girls' schools? Do the officers of your department inspect drawing in those schools?—Yes, but drawing is optional in girls' schools.

5576. At what age do you think children may with advantage begin manual instruction?—If the manual instruction means the use of tools rather than any mere use of their hands in any school occupation, I should say about ten or eleven.

5577. But taking it in the more general sense, so as to include rudimentary hand and eye training?—I should say it should he continuous through the whole school course, and taken as a development of the kindergarten work.

5578. In what form do you think this manual instruction may come immediately after the kindergarten work?—I should say paper-folding itself would be almost kindergarten work. I should draw the distinction I think between kindergarten work and manual training properly so called, at the point where you could say that some industrial or useful result would follow or could follow from the training given.

5579. It depends on what you mean by useful?—I should say, for example, that paper-folding was a mere kindergarten occupation

5580. Let me ask you about a particular form of paper-folding which we saw done in Birmingham; there the paper-folding is done from drawings on a board. Don't you think that such work goes a little beyond the ordinary kindergarten stage? Such work requires a good deal of quickness of observation to interpret the diagram exactly, and it seemed to me the children were above the infant department?

Professor FITZGERALD.—They were in the first or second stage out of the kindergarten.

Witness.—I should not restrict the term kindergarten merely to the occupations of the infant school; it is merely a difference of terms. I should say for instance that the paper-folding that is taught at Birmingham is a kindergarten occupation from the fact that the object is mainly to train the hand and eye. If you carried that on to straw-plaiting I should say that was manual instruction, because you are not only training the hand and eye but you are also training a faculty which may be of some industrial benefit hereafter.

5581. CHAIRMAN.—But surely quickness of observation may be of industrial benefit hereafter?—It is.

5582. Next, cardboard work would come after paper-folding?—Yes, being a harder material to work with.

5583. You know the system which they have in Birmingham of building up objects from bricks; you consider that useful?—Extremely useful. Wire working can also be introduced at a comparatively early age.

5584. And it has the advantage that it can be introduced at a comparatively trifling cost?—Yes.

5585. Would you call that kindergarten too?—You cannot really draw any accurate line.

5586. It is better then to include the whole thing under the term hand and eye training; this would fill up the gap that exists in many schools at present between kindergarten and the working in materials?—Yes.

5587. Then the use of tools should not come until a later stage. At what standard do you think they could be introduced?—Our Department makes the 5th standard the minimum, and that is about as low down in the school as it can be taught with advantage.

5588. The Education Department allows it to be taught in the 4th standard, I understand?—Yes.

5589. What are the advantages of these special practical branches of teaching?—The most important advantage is its effect on the quickness of eye and on the intelligence, especially where it is closely allied with drawing. My own notion of manual instruction is that as far as possible it should be applied drawing, just in the same way as in Mr. Bevis' course, the scholars even in the earliest stages are taught to work from the blackboard diagrams, interpreting them for themselves, and working them out in material, so when they are dealing with wood or metal they should work from carefully prepared and dimensioned drawings—work from the flat to the solid.

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5590. In the woodwork the children make the drawings themselves?—Yes.

5591. It would not be so easy I suppose for the children to draw in that way in the earlier stages?—Not in these earlier stages, but it should be done.

5592. The importance of accuracy is impressed on children very forcibly by these processes for hand and eye training?—You get accuracy probably more developed in that subject than in anything except arithmetic, where, of course, you get a right or wrong answer, and a child knows at once. The same way in the manual training properly taught, the child must see for itself whether the exercise is done right or wrong.

5593. There are some exercises in which the child could hardly see that at the moment, but would discover it when three or four other operations had been gone through; is not that the case in paper-folding?—That is so.

5594. But this has the advantage of making the children careful. As to the tools that ought to be used in woodwork, you have formed some opinion?—I think the plane, the saw, and the chisel are the most important tools to begin with in woodwork, because in the first place, the plane enables the child to learn what a flat surface means, the saw enables them to judge of accuracy of length and dimension, and neither of those tools is likely to cause any serious damage in the way of accident · the chisel is a more dangerous tool, and would come after the plane and saw are, to some extent, properly understood.

5595. Is not the saw dangerous?—Not so dangerous as the chisel; the first cut with a saw is probably the last, but a chisel may make a very awkward jab.

5596. A child may cut off his finger or hand with a saw?—Not with a hand-saw; the first cut through the skin would tell the child its danger, whereas a chisel might escape from the hand, and make a very serious wound. We find that the careful use of the chisel is the only difficulty in the school, in addition to the general difficulty of insisting that all the tools should be properly used and handled.

5597. There are some important differences between the Swedish Sloyd and the system recognised by your Department?—I ought perhaps to say that we have no definite system sanctioned by the Department. We take the system that any school chooses to put forward on its merits, but if a school puts forward a system which is purely a Sloyd system—that is the course that is carried out at Naas—or any slight modification of it, we generally draw attention to the fact that the earlier exercises in the Sloyd system require the use of tools that are not the common tools of this country; for instance, they require the use of the Swedish knife, which of course is not a tool used in any common handicraft in this country; and also they allow the use to a very great extent of sand paper, which in our opinion is not a constructive tool, that is to say, it is not a tool which you would use for the purpose of constructing any object. You might use it for the sake of the polish on the object, but not for the sake of obtaining accuracy of dimensions.

5598. It seems rather to be a way of getting rid of defects?—Yes.

5599. And in that way it seems an inconsistency in the Swedish system. But, at all events, you object to the use of sand paper?—We object to the use of sand paper because we find it is very difficult to restrain its use to that one purpose of putting on a fine surface.

5600. For educational purposes we don't want the fine surface?—We don't want the fine surface, we only want accuracy and working to given dimensions; we want the child's work done with ordinary tools to coincide with a drawing, and we want that coincidence produced by the use of ordinary tools like the saw or plane, not the Swedish knife.

5601. Professor FITZGERALD.—Is it necessary to use a Swedish knife; would not an ordinary penknife do?—Even an ordinary penknife, which is very rarely used in Sloyd schools, is not a tool used in ordinary handicraft.

5602. But it is a tool used by children?—Our Department is tied down by the Treasury only to sanction the use of tools used in ordinary handicraft.

5603. CHAIRMAN.—Do you consider that a drawback?—On the contrary, I consider it a very good thing.

5603A. What is the special peculiarity of the Swedish Sloyd knife?—It is a fixed knife, more like an oyster knife.

5604. Professor FITZGERALD.—If you push on it it does not turn back on your hand; it is a knife with a fixed blade?—Yes.

5605. CHAIRMAN.—As to metal work, do you think it can be usefully introduced into a course of manual instruction?—Yes, it can be introduced at a comparatively early stage if subjects like wire-work or tinplate-work are taken in.

5606. Is it of such general advantage educationally as working in wood?—I don't think so; it is more expensive; the bench fittings are more expensive, and the work is more laborious as a rule to boys; it is also dirtier and not such easy work, and has less intimate connection with drawing.

5607. Professor FITZGERALD.—I see here, in the Report of the Joint Committee · "The teaching in the different kinds of wood is rather criticised as being unreal," have you observed anything of that sort?—I very seldom ask any questions on the subject.

5608. Then you don't think it is an important part?—I do not.

5609. CHAIRMAN.—There is a special chapter on that subject in some of the books that we have seen, Mr. Bevis' or Mr. Barter's?—I sometimes ask the teacher to ask a few questions on the growth of wood, and the reasons why wood should be cut in one way rather than another, and questions as to the fibre, and whether it will shrink in seasoning.

5610. That Report also complains that there is only a very elementary knowledge of mensuration and geometrical drawing; that certainly ought not to be so?—I consider that in those classes that was hardly a statement of the case.

5611. Perhaps the Examiner had some special idea of mensuration and geometrical drawing, some kind of thing that was not much use in woodwork?—Of course you are dealing with children whose geometrical knowledge would obviously be very small in the 5th and 6th standards, and you could not ask for any very advanced ideas in solid geometry; on the other hand we find that children in these standards can understand and work from a drawing in plan, elevation and section, or an isometrical projection very well.

5612. Do they write out descriptions of what they have done?—Very rarely.

5613. Do you not think it would be desirable to add that?—There are many subjects of ordinary school work in which that comes in.

5614. Do they write out descriptions of what they have themselves done in other subjects?—In all the classes connected with our Department there would be a very great deal of writing out from notes.

5615. Is there any other subject besides this, taken in elementary schools, that is connected with your Department?—No.

5616. Then would it not be desirable, in connection with this woodwork, that they should write out what they have done?—We have the disadvantage, or advantage, that two Departments are dealing with the same school, and you get of course this result which always occurs—that each individual who examines a special subject wants his own subject taught, as if no other subject ever existed. I think that, considering the crowded condition of the curriculum of the elementary schools, it would be very unnecessary to add further to the necessary amount of writing, composition, and note-taking that a child has to take; English composition, dictation, grammar

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exercises, geography—all are tests of the child's power of writing out what has been explained to him, what he has been told, what he has seen. I don't see the necessity of doing this in the case of manual instruction.

5617. Do you examine in the Elementary science teaching?—Yes.

5618. Have you considered the difference between the science teaching in the Tower Hamlets district and the ordinary science teaching in schools?—I know the system Mr. Heller is adopting, but so far as that is carried out in the Tower Hamlets district, and some other parts of London, it would come more under the purview of the Education Department, because the science taken is a specific or class subject under the Education Department. Our connection with the science teaching would not come until a school was subsequently arranged as a science school in the 7th standard, or ex-7th.

THIRTEENTH PUBLIC SITTING.—FRIDAY, MARCH 26TH, 1897,

AT 10 O'CLOCK, A.M.,

At the Examination Hall, Victoria Embankment, London.

London.

March 26, 1897.

Present:—His Grace the Most Rev. WILLIAM J. WALSH, D.D., in the Chair, The Right Hon. C. T. REDINGTON, M.A.; His Honour Judge SHAW, Q.C.; The Right Rev. Monsignor MOLLOY, D.D., D.SC.; Rev. HENRY EVANS, D.D.; Rev. HAMILTON WILSON, D.D; Professor G. F. FITZGERALD, F.T.C.D.; STANLEY HARRINGTON, Esq., B.A.; W. R. J. MOLLOY, Esq.; Captain T. B. SHAW; and J. STRUTHERS, Esq., B.A.;

with J. D. DALY, Esq., M.A., Secretary.

Mr. JOHN COOKE, Hon. Secretary, Sloyd Association for Great Britain and Ireland, examined.

Mr. John Cooke.

5619. CHAIRMAN.—You are an active member of the Sloyd Association for Great Britain and Ireland?—Yes.

6620. You are Honorary Secretary, and have long taken an interest in this branch of school-work?—For the past nine or ten years.

5621. And you have experience of the working of it in England?—Yes.

5622. You regard manual training as an important element of education?—Yes, that is so, I think it is a very useful instrument for that purpose.

6623. Do you regard it as useful, not merely for the training of the hands and eyes, but also as an intellectual exercise?—Yes, and for training the different qualities of interest, accuracy, observation and self-reliance.

5624. In a word, for the training of all those faculties that are likely to be of use to the children when they grow up?—Yes, in any course of life which they may take.

5625. Not merely as artizans or members of a trade?—No; no matter what course of life they may take, they have those faculties trained and enriched in their early school-days.

5626. Quite apart from the manual dexterity which it enables them to acquire?—Quite apart from the manual dexterity: that comes, but that is not, of course, the prime aim in taking up manual work; the aim is to educate the child and make him useful, he is to be the first consideration in that work: the dexterity which comes with tools is, I might say, almost incidental, it does come through it, but that is not the object in taking up the work.

5627. So the utility of this branch of school-work is not confined to those children who are going to be artizans, and will have to work with their hands in after life?—Oh, dear, no; so far from that, there is no pretence made of teaching a trade, they get the ordinary working in tools which will always be useful in trade, but the whole course of instruction is to be free from trade and technical teaching.

5628. By technical teaching you understand——?—I mean the preparing for a particular trade; I must say that manual training, as I understand it, is educational, and if not it has no place in an elementary school, while technical instruction is to be for boys of an older age to prepare them for a particular trade, if they wish to take it up.

5629. And you consider that technical training in the strict sense of the word is out of place in a primary school?—Yes.

5630. Probably you will agree with me in saying altogether out of place?—Yes, I think so.

5631. When you say that manual training should not be utilitarian you don't mean that it should be of no use?—No.

5632. "Utilitarian" is a word that unfortunately is used very loosely?—I mean that that should not be the first aim in taking up manual work in a school, to give the boys dexterity with tools, and in making articles if you like for sale.

5633. But you would wish to give him the education that will be of use to him?—All general education will be of use to him if it is to be generally applied and not particularly applied.

5634. You mean then that it should not be picked out merely because it is likely to be specially useful in regard to some particular occupation?—Not necessarily so, not for that reason.

5635. Just as teaching writing may be of special utility in view of some particular occupation in after life—if a boy, for instance, is going to be a clerk, or a book keeper, or a writing master, or a scrivener,—but that is not the reason why writing is taught in an elementary school?—It is a preparation for a boy to become a clergyman, it may be, but it is not taught with that object.

5636. I believe it is a favourite illustration of the principles of the Sloyd system that in the teaching of Sloyd, no more importance is paid to the actual objects produced in the Sloyd class than is paid to the pages of a copybook that are filled by a child when learning to write?—That is the illustration to show that the child is to be the first consideration in education.

6637. Just as in writing, it is what the child learns from the process of filling the copybook that is of importance, not the number of pages he covers?—Yes. The working in the Sloyd class is to be in the same way the instrument through which he learns.

5638. In what sense do you take the word Sloyd: sometimes it is taken as meaning a particular kind of educational woodwork that is found to be specially appropriate in the schools in Sweden?—I don't take it in that meaning at all. I should describe that simply as Swedish Sloyd; but Sloyd in its broader sense I should take as an educational training in any material, whether cardboard, iron or wood.

5639. Would you apply that even to the earlier stages of manual training?—Oh, yes, so far as they are graded and followed out on a set scale or system, arranged on educational principles beginning with

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working on paper, through that to cardboard, and then to wood and metal.

5640. Therefore, anything that trains the hand and eye on scientific lines, with a view to these general educational advantages, you would call that Sloyd?—I should. I should say take the models that are worked at Naas, they are simply a Naas expression of the educational principles that underlie the teaching; but take these models and put them down in any other country, and say "We are going to teach this," I should say that was not Sloyd of necessity, it might be, but it would not be because these models were taken. The true principle should be applied and the models adapted to the needs of the place, and so long as they can be educationally applied it is true Sloyd.

5641. So you agree with me in thinking that it is not a slavish adherence to what goes on in Sweden that is to be designated Sloyd?—Not a slavish adherence, but applying educational principles if you like to each locality in which the teacher may be, and each country.

5642. Then you consider there should be a certain amount of latitude allowed, not merely as between different countries, as, for instance, between Sweden and Ireland, but even within a particular country?—Decidedly.

5643. The kind of manual operation that might be most useful educationally in one district——?—Might not be in another, and therefore I think the latitude should be allowed to teachers to experiment, and of course under guidance, that they should be allowed a free hand to a very large extent, and so modify the system which they have taken.

5644. By "models" you mean, in the Swedish technical sense, the objects produced?—Meaning the thing produced, not the exercise

5645. You distinguish between "exercises" and "models"?—Yes. Exercises, I might say, mean manipulations, and the models are groups of these manipulations.

5646. Making a joint in woodwork would be an exercise?—That would be an abstract exercise, it would not be in any way applied.

5647. Suppose a child was put to make joint after joint, that would be a mere series of exercises?—Yes.

5648. Would fastening a lock on a door be an exercise?—I don't think it would, not a mere simple exercise, because there is the work that is put on the door, the place made for the lock.

5649. The lock is already complete in itself and it is merely fastened on?—Yes.

5549A. Then, properly speaking, it is neither an "exercise" nor a "model"?—Neither.

5650. By a "model" you mean a completed object?—Yes, one of these (*pointing to a hexagon*).

5651. Or even a common penholder, or a cylindrical ruler?—Yes, there are combinations of exercises, and the finished model is to be the expression of those exercises and of the manipulations which have produced them

5652. In the Swedish Sloyd system the series of objects to be produced is most carefully and scientifically graduated, and the scientific graduation of the series goes on the basis of the exercises by which the objects are produced?—That is so.

5653. They begin with the object that requires the fewest and simplest exercises?—Yes, if possible find out the exercise the boy can do to start with, and let him employ that exercise on a finished model; and next, say for the second model, introduce some simple second exercise.

5654. The second model may introduce a different use of the same tool, or it may be the introduction of another tool which he has not used before?—That is so.

5655. But I believe in the earlier models the working is confined to one tool until the child becomes fairly familiar with the use of it in a variety of ways?—Yes, and that tool is taken because it is a proceeding from what is known to what is unknown, from what is simple to something complex.

5656. One thing at a time?—Yes, from known to unknown, and simple to complex.

5657. And only one thing is introduced at a time in passing from one exercise, or one model, to another?—In the advanced models there may be one or two new exercises, the child meanwhile has been gaining skill.

5658. But in the earlier stages?—It is just proceeding by one new exercise in each new model.

5659. When a certain point of efficiency is reached it becomes necessary to provide a variety of objects?—Yes.

5660. And as the course progresses, that necessarily involves the introduction of some new tools?—Yes.

5661. As to the tools, what is the tool you begin with in Swedish Sloyd?—The knife.

5662. Does the Swedish Sloyd knife differ from our ordinary penknife?—It differs from it mainly in having the blade fixed

5663. Captain SHAW.—It is like a pruning knife?—Yes, it is very similar.

5664. CHAIRMAN.—Is it sharpened on both sides?—No, only one, it is the ordinary every-day form of the Swedish or Norwegian knife, it is not a particular adapted tool for this purpose.

5665. So that the reason it is introduced in the Swedish Sloyd is because it is the ordinary knife of the country?—Yes, in the first case Sloyd was taken up as a means of giving new life to the home industries of the people in the dark evenings, but afterwards it was put on educational lines, and the knife was adopted.

5666. Can people carry a knife of that kind in their pockets?—There is a leather sheath for it, with a tag to fasten on a button.

5667. Taking the penknife as the ordinary knife of this country, do you think it could be used with the same advantage?—Decidedly, I could use this knife (*pointing to a penknife*) for all the models that are made by the knife in Sweden.

5658. It was remarked to us yesterday that the penknife is open to one objection, the blade may suddenly close up on the child's fingers?—That is the difficulty, there is less danger when the blade is fixed, but the models could be made, with care, with an ordinary penknife.

5669. What knife is used in the Sloyd classes in England?—The Swedish knife, made after that pattern

5670. What does a knife of that sort cost?—Six pence to seven pence, a very good one for that price too.

5671. Am I to take it that in the Sloyd system preliminary exercises should be used only as far as they are necessary for the making of the assigned "models" or complete objects?—Yes, I mean by preliminary exercises, exercises in the use of tools, abstract exercises in the use of tools to gain some confidence in the working and some power over them.

5672. It is a very important principle in the Sloyd system that there is to be no division of labour in the production of the object?—That is so, a child should make his own model right away, from beginning to end.

5673. If a teacher has to correct mistakes, how does he do it when woodwork is done in a school on the Sloyd principle?—He is to show the child how to get over his difficulty by working on another piece of wood.

5674. First he would explain to the child what mistake the child has made?—He would explain.

5675. And he would try to get the child to take it in from hearing the matter explained, but if the explanation required to be supplemented by demonstration, how is the demonstration given?—It is provided by the teacher working that exercise, and getting over that difficult point on another piece of wood, but if the model is in the earlier stages there is a surface of wood that the boy is working on, the demonstration then by the teacher might be taken on the same piece of wood, but it would be nothing towards the completion of the model, part of the wood would be cut away.

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5676 So that what remains when the object is completed has been the work of the child's hand from beginning to end?—Entirely and wholly.

5677. What place does drawing hold in the Sloyd system: are the objects first drawn by the child before they are produced, or does the child work from drawings made by other people?—If he did the drawing before the model he would proceed from the abstract to the concrete, which is a wrong educational principle, the theory is that the child when he comes into the manual working-room does not understand a working drawing, cannot read it, he is familiar when he comes there with only two dimensions—length and breadth.

5678. What does the child work from in producing his first model?—He works from a model in Sweden and in England.

5679 That is, he copies a solid object?—Yes.

5680. The first model is a sort of cylindrical ruler?—No, a small pointer, or in England it is a window wedge, and he is taught to draw that in English schools, but he is taught from the model, and how to get the drawing of it from the model itself, he does not just do the drawing from a copy.

5681. He does not merely copy it from one piece of paper on to another?—Oh, no.

5682. Does he draw from the solid?—Principally he does by freehand, keeping length and breadth and taking the two views without reference first to size.

5683. That is to say, he begins by striking out a rough plan?—Yes; afterwards when he becomes more familiar with the connection between the drawing and the model itself, he will be able to work from a drawing without his model.

5684. Suppose he had to make an ordinary solid, would be work that out without a drawing?—He would show first the length and the breadth of the side and the plan and the elevation, but he would do that in connection with the solid model itself, he would not do drawings as an abstract exercise, he would do it fully in connection with the model.

5685. But is it insisted on in the Sloyd system that be should make that drawing before be sets about producing the object?—It is in English schools.

5686. But not in Sweden?—Their theory is the model first, because the boy has no proper conception of what the drawing is like, he must do that from the concrete, by-and-bye he works from his own drawing and the model together, as explaining and supplementing each other, by-and-bye the model is discarded and he works from the drawing alone.

5687. I went to Sweden a few years ago, mainly to learn something about the Sloyd system, and I certainly saw very young children who seemed to be working from working drawings in some of the Swedish schools?—Yes.

5688. But that is not the first stage?—That is not the first stage there, though here the drawings are prepared first, and in the manual training-rooms you can see the drawing books, but the drawing is not done abstractedly and without any reference to the model at all.

5689. It is more difficult of course to make a drawing of a solid object than it is merely to make a copy from the flat, from one piece of paper on to another?—Yes, there is the different play of light and shade and perspective coming in.

5690. Surely the working drawings need not bring in perspective?—No, merely plans and elevations, and in some cases sections: in Sweden too, they are encouraged to draw the object as it appears to them, freehand model drawing.

5691. Let me understand you. Do you mean to say that this includes perspective?—Including perspective, but for the working purposes that would not have any use.

5692. As an architect, when he gives you an idea of the church or house he is going to build for you, he gives you, in the first place, the elevation and the plan, then any sections that are required; when he has done that, he obviously has done all that can be required, or that can be of any use, for working purposes: but of course he may throw in a general perspective view of the church, or of the house, for artistic effect?—Yes; but that would not be any use to the worker, and it is just the same with this.

5693. In England I find there is a tendency to use that term "manual work" in reference only to the upper range of practical school work, working in wood and metal?—Yes, I think there is.

5694. Let us take the expression "manual training" in the broader and more general sense as indicating all hand and eye training: in Birmingham they go so far as to distinguish between manual working, wood and metal work, in the higher standards, and hand and eye training, by which they mean the practical work in the lower standards: I think the distinction, in one sense, a very useful one, but let us take the whole thing from beginning to end, can you give us any idea of the nature of the preliminary exercises in your Sloyd system?—I brought a few specimens of work that have been done by the children in the earlier stages: I begin by letting children use scissors. (*Specimens produced.*)

5695. As it is important to have this on our minutes, let me ask you to describe it in detail; these are pieces of coloured paper divided into squares?—They run in eight inch squares.

5696. And then the large squares are subdivided?—Yes.

5697. Then the children are taught to cut these papers out with a pair of scissors?—Yes.

5698. And then when they have cut out a square, they paste it on to a piece of cardboard?—Squared in the same way, the back of the paper is gummed, a sponge is wet and rubbed over the mount, and then the coloured paper is put on.

5699. Are there lines on the cardboard to indicate where the squares should be put on?—Yes.

5700. Then this is a purely mechanical placing of pieces of paper on a piece of cardboard?—There is care to be taken to make the lines agree.

5701. Mr. Redington.—In what standard is that done?—This is done by Standard 1, boys and girls, in many schools.

5702. Chairman.—It may be important to bring out that in Sweden the educational working in wood is not confined to boys?—No, it is taken by girls as well.

5703. And apparently, just as freely taken by girls?—Yes, and they enjoy it quite as much.

5704. This pasting of papers that you are now describing to us is done in England?—Yes, these are done in my own school.

5705. What comes after that exercise?—This one (*produced*): they put the mount on as before, and then with a square of the same size, they draw lines from the middle point on each side.

5706. This second square is a square of half the size put on obliquely?—Yes, then afterwards there are two small squares put in opposite corners.

5707. So you have a variety of patterns?—Yes, and generally done in different colours by different boys.

5708. Captain Shaw.—Is the choice of colour left to the individual?—No, not at this stage; the colours are chosen in the first case by the teacher, and by-and-bye the children get to have a great many of these little bits of what might be waste material in their bags.

5709. Chairman.—One of the objections we heard made to the Sloyd system was that it does not deal with the question of colours, but as you work it, it seems to deal with colour?—Yes, but colour cannot be properly arranged for in a course of wood.

5710. The children are not left to select the colours for themselves?—Later, I should allow the children to use the spare pieces they have in constructing their own design, and building it up in their own colours, simply as an exercise and review of the work done.

5711. Although all this is done merely in reference

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to its general educational effect it would apparently be of use to a man in laying tiles. I have an instance in my own house in Dublin, where a few ornamental tiles were laid by men who evidently had not had the advantage of any preliminary training such as this?—It would be greatly of use, and I believe it is Mr. Ricks' expression in a lecture he recently gave that the boys who had worked in cardboard and paper work were better able to take up a course in wood, they have control over tools: those are boys from seven to ten.

5712. Captain Shaw.—This is merely imitative so far?—So far, and must be, I think, in the lower stages until you get these ideas of form and colour somewhat developed in the children.

5713. Chairman.—At what standard is this (*showing object*) done?—That is all first standard work.

5714. The children work from a copy?—They work from a drawing.

5715. Are the colours indicated on the drawing?—The colours are not indicated on the drawing. I give them two colours and let them choose which they will use as ground colour and which put on top.

5716. Does the drawing indicate which is the ground?—Yes, by flat shading.

5717. Then that is a useful exercise, the children have to interpret the drawing: is it shown on the blackboard?—Yes, and in many cases copied by them in their books. Those (*showing objects*) are sixteen quarter inch squares; in drawing one on the board I should perhaps draw a square—say, quarter the size—and leave the children to enlarge.

5718. Each of these squares represents a quarter inch?—Yes, and each dark square an inch.

5719. So, in this way, the eye becomes accustomed to actual measurement?—Yes.

5720. Then what comes next?—In late Standard 2 and Standard 3—through the earlier part of Standard 2 there would be an extended course of that, all that work is simply a superimposing of paper, there is no fitting. In another stage I introduce the fitting of paper; let them cut the edge with a knife and let them fit the two edges together.

5721. It is a development of the earlier work, the process becoming more complicated?—Yes, and then going on from that I should begin with their cardboard work.

5722. I find here an oblong piece of cardboard?—That may be any shape, just as it is torn from the sheet. Before that came the boy would want some exercise in using a knife, cutting. He would take a piece of card, draw lines on it with his pencil and ruler, and set out half inches and cut it out with his knife.

5723. Suppose he has to make an equilateral triangle, is he told that it is an equilateral triangle?—Yes; he is taught the name, and the reason for the name.

5724. He has this piece of cardboard with a triangle pencilled on it, what is the next operation?—To cut out the triangle with a knife; that must be done exactly.

5725. Does he make a triangle in the first instance?—He makes the drawing himself.

5726. So he learns how to make an equilateral triangle?—He learns how to do that, and the reason for its name. Then it has to be cut out larger in paper, and the cardboard mounted on it.

5727. The next step is to cut out an equilateral triangle of a somewhat smaller size, and then it is pasted on to this sheet of paper?—Yes, leaving a margin all round.

5728. Captain Shaw.—Do they cut the paper with a knife?—Yes, it is more accurate than cutting with scissors.

5729. Chairman.—They draw a line in pencil first?—Yes, and put on their ruler, and cut out with their knife.

5730. Captain Shaw.—Using the ruler as a guide?—Yes.

5731. Chairman.—Do you use a ruler as a guide?—I don't always have a line, I have two points.

5732. The next step is folding the paper over the edges of the triangle?—Yes.

5733. I take it that the edge must be cut carefully so as not to have too much or too little cut away?—Yes; so that no corner of the triangle is shown.

5734. The final stage is that you paste a piece of coloured paper over what you have done, so as to leave a still smaller margin, nothing of the original triangle remains visible at this stage?—Yes; but that would never be allowed to be covered if it was done in an unclean or untidy way.

5735. By the way, an objection was made here to the use of sand paper in Sloyd,—that it is apt to degenerate into a means of covering up untidy and inaccurate work?—You have the same thing in any form of education that is taken up if you have an untidy teacher; I think that is a matter entirely for the teacher.

5736. Why use sand paper at all in educational work?—To produce an accurate and pleasing article.

5737. If the object was to produce things for the market I could understand why sand paper was used, but seeing that the whole object is an educational object, would it not be a great deal better to let the children work with ordinary tools and get the thing as near an accurate finish as possible?—He could not get as absolutely finished a surface with a knife as with a plane.

5738. At all events, I suppose that anyone who did not like sand paper could leave it out?—He might say so, but I don't think he would stick to it.

5739. I mean that the use of sand paper is not an essential part of the Sloyd system?—No, except in the way that it is an essential part to have a beautifully finished model. The sand paper is never used after a plane.

5740. Is it ever used, or should it ever be used, until the utmost possible accuracy has been obtained that can be obtained without it?—No, and it need never be used even in the first model except for a few minutes.

5741. Now as to the next stage?—Following on the triangle there is a square, then an oblong.

5742. Then you have these same exercises in the folding of rectilineal figures—let us say the most complicated one, the octagon; then you also have it with the circle. Do you consider the circle the highest development in this branch of work?—It is perhaps the most difficult; it is cut with scissors and not with a knife.

5743. At what standard are the children able to do this?—Late 2nd or early 3rd. I should like to get this taught about the close of standard 2. After the flat we pass to the solid, cube, square, and prism.

5744. Do you do the sphere at all?—No.

5745. Rev. Dr. Evans.—Are we to understand that this was done at the Hammersmith Schools?—Yes, entirely by the boys from beginning to end. From these solids they go on to the making of complete objects.

5746. Chairman.—I wish we could get to call them objects instead of models, because people who don't read up carefully on the subject are apt to be misled?—There is no objection to calling them so.

5747. This then is the third section?—Yes: first the flat, then solids, then making the complete objects. Here is the object cut out; then the cardboard is cut through to permit them to fold it up.

5748. Mr. Redington.—Do you mark out how much they should cut away in the corners?—It is marked out on the drawings they have, but they have to copy it on to this paper; it is entirely their own measurement. Then they are turned up at the edge and decorated.

5749. Chairman.—All the original work is covered up except the edge?—Yes; here is a finished one. (*Shows examples.*)

5750. Then you show us here a beautifully finished cardboard writing desk; that represents the highest development of your card board work?—Yes.

5751. At what standard would a pupil make this?—The boy is in 7th at present, but he did that for an industrial exhibition.

5752. At what stage would a pupil make that tray?—Standard 4. They generally stop the cardboard

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when they begin the wood, though a few of the boys will carry it forward.

5753. I see a great advantage in this. In places where the expense might be a formidable obstacle to the introduction of woodwork, work of this kind might be done; there is very little cost in this but the cost of the materials?—Yes, and the cost of equipping a school for that work would be very small.

5754. How long would it take a child to make that one model (*indicating writing desk*)?—The boy did it in two days.

5755. Captain SHAW.—Working how many hours a day?—Three or four hours a day. I could not be sure, for the boy worked part of the time out of my sight Here (*produced*) are the drawings.

5756. Are these always drawn for them?—No. They make these drawings themselves on to the cardboard.

5757. They make them from flat copies?—Yes.

5758. CHAIRMAN.—Would the boy that made that drawing be able to make working drawings for an object such as this writing desk?—I am sure he would.

5759. Mr. REDINGTON.—What is the expense of introducing this work?—In cardboard work you want tools, and rulers, and plates or millboard for cutting on, and a scissors

5760. CHAIRMAN.—What tools are used first?—A knife and brass ruler, and a surface for cutting on. We use then zinc plates and a pair of scissors. If you are going to equip a class of fifty or sixty it would run from 2*s*. to 2*s*. 6*d*. per head, and then they are maintained during the year at 6*d*. a head.

5761. These tools and appliances would last for many years?—Yes, and for many classes.

5762. How many pupils should be in a class?—The smaller the number the better for individual supervision, for manual work cannot be well taken as a class subject. I have been taking a class of forty or fifty in paper work. I would rather take a smaller number, and in cardboard work a large class cannot be successfully taught.

5763. How long does a class last?—From a quarter past two in the afternoon to a quarter to four.

5764. The classes should be smaller in the beginning?—Yes, and as the work progresses there is a difference.

5765. Should you prefer smaller classes or larger ones?—In the highest cardboard work I don't think a teacher should take more than twenty

5766. At what standard do you introduce wood work?—The fourth and fifth. The fifth is the one at which grants are received, but it is very well to begin at least some exercises at fourth.

5767. Do you get any grants from the Education Department or from the Science and Art Department for the preliminary work?—No, these are voluntarily done in schools: it is an optional subject.

5768. Would it not be recognised as a suitable occupation?—Oh, yes.

5769. And consequently there is a payment on average attendance?—No, there is not.

5770. Captain SHAW.—There is a payment for "suitable occupation," if you take it as a class subject, you can get a payment of 1*s*. or 2*s*.?—Yes.

5771. CHAIRMAN.—On the average attendance. Then at the fifth stage the woodwork comes in; have you anything to say before we reach that stage?—No, I don't think so, further than what I have said.

5772. Then we come to the woodwork?—From 30*s*. to £2 would equip a class of twenty, and that will do for relays of twenty

5773. That is, for the initial cost?—For the benches and tools, and those will last any number of years, and for relays of classes of that number, it is not for every twenty.

5774. I understand that: it is for a series of relays of twenty throughout the ten school attendances of each week?—Yes.

5775. Mr. REDINGTON.—That would be 200?—Yes, if you had 200 children in a school whom you were going to give manual instruction to, and they could be turned into the room in different relays of twenty during the week, the same tools and the same room would be available for them.

5776. CHAIRMAN.—Do you work in connection with any schools on the centre system?—No.

5777. In how many schools in London is the Sloyd system worked out as you have illustrated it here?—I don't know in how many they do paper work and cardboard; only a few; it is not taken generally over the schools.

5778. The idea seems to be, as the Department recognises manual training only in the 5th standard, that manual training may not be introduced until that standard?—As a matter of fact, it is introduced earlier under the London Board and the Hornsey Board; in many schools it is given in standard four.

5779. Captain SHAW.—On that point it is distinctly laid down that boys should not begin woodwork until they are capable of using tools?—Yes, and standard four boys require selecting, in many cases it would depend on the boy's age and strength, and in some cases his height.

5780. Mr. REDINGTON.—At what age do they begin in Sweden?—At ten.

5781. CHAIRMAN.—Do the girls begin as early?—Yes, and in some of the Gothenburg schools they have smaller tools.

5782. But that is not approved of by all the authorities?—No.

5783. In England woodwork is confined to boys?—Yes, but in some girls' schools it is taken. Then you have the cost of maintenance—the outfit for the room is initial, and the cost of maintenance for the year, about 1*s*. 6*d*. per head, would keep them in material.

5784. Do you find any difficulty in working under the rules of the Science and Art Department?—Somewhat.

5785. There is a rule of the Science and Art Department that the tools used are to be the tools used in the ordinary handicrafts?—There is only the question of the knife, that comes in there, and in some trades the knife is used.

5786. So, practically, though you work on the lines of the Swedish Sloyd system, you are not excluded from the State grant?—Where we used the knife the grant has been docked in several cases. I believe the last circular will admit it; provided the average length of the lesson is the length required by the Department after the knife has been withdrawn, the full grant will be paid.

5787. Mr. REDINGTON.—For cardboard work no separate room is required?—No, they do it on the ordinary school desk.

5788. CHAIRMAN.—Cardboard work makes no noise?—No.

5789. Consequently in rural schools it would be useful, where there are only one or two teachers, and perhaps only one school room?—Yes.

5790. Could it be worked by one teacher?—Yes, I am sure; of course the classes would have to be taken at different times during the week.

5791. What class of people should be selected as teachers for manual work: is it teachers in elementary schools or skilled artizans?—Certainly not artizans: wherever possible, the teacher of the school, the trained primary school teacher, should be the manual instructor, or the manual instructor should be a trained teacher.

5792. I believe in Sweden they began by taking artizans as the teachers for the woodwork; the idea was that it was only an artizan that could teach the children how to work in a material such as wood; but that system had to be given up?—And it has been given up in other places; Manchester started on the same principle, but the work failed.

5793. You are aware of course that in Sweden the system of employing artizan teachers has been practically given up, if not altogether?—Yes.

5794. The tendancy is to give it up altogether?—Yes, and introduce the trained teacher as the manual teacher.

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5795. You consider of course that the fact of having the trained teacher dealing with this branch of school work is calculated to keep the educational idea of it more prominently before the children?—That is so, rather than the trade side.

5796. If the children see an artizan, no matter how intelligent, brought in, the educational object of the work is not as clearly shown out as it ought to be. If they see the book work done by an ordinary school teacher and the woodwork taught by an artizan, the idea may creep into many minds that the woodwork is not really a part of the school work, and that it is rather something in the nature of beginning an apprenticeship to a trade?—They may, but that is not the main objection; it is an objection.

5797. What then is the main objection?—That the work will be less educational under the artizan's teaching than under the teacher's teaching.

5798. But you may possibly get an artizan who will grasp the educational idea?—You may, but it is rare.

5799. I believe in London, when the experiment was first tried, there were six centres; three were placed under the care of artizan instructors and three under trained teachers. We heard that sufficient time was not given for trying the experiment. It was proved, was it not, that the trained teachers regarded themselves as more or less shunted when they got in upon this line, and tried to get back on the main line as soon as possible—the line of promotion as teachers?—That was owing to the arrangements of the Board. They would give the teachers no guarantee that in the event of the experiment failing, they should be eligible for headships or return to the schools that they had left at the same salary.

5800. It was suggested to us that you are likely to get only the second-rate teachers from the teaching class, and you are likely to get the first-rate artizans from the artizan class. If so, you are likely to get the least promising material from one side of the line and the most promising from the other. So, taking things all round, it was suggested that possibly the plan of selecting teachers from the artizans might be the more useful one to adopt. Is there anything in that view?—I don't think there is very much in it, because where a teacher really is a teacher in the best sense of the word, and realises the good that will result from manual work, he will do it well.

5801. Have you actually taught Sloyd?—Yes.

5802. Have you been a teacher in an ordinary school?—Yes; I am now under the London School Board.

5803. At what school?—Flora Gardens, Hammersmith, and these specimens were done in my own classes.

5804. How many pupils have you in that school on an average?—The average attendance is 360.

5805. There is a principal teacher?—Yes, and a number of assistants.

5806. Are you a principal or an assistant?—An assistant.

5807. Who has charge of this manual work?—We each have charge of it in our own classes.

5808. You have charge of a class in one of the standards?—Standard I. I shall go right away through with that to the top of the school.

5809. That is, you will take charge of those children in the first standard, teaching them all the subjects, and then follow them on from beginning to end?—Until they leave the school; in my own classroom I have this work as a "suitable occupation," and we take it on Friday afternoons.

5810. Captain SHAW.—Are the children promoted out of your standard?—Occasionally, if a boy shows special aptitude, if it is considered he can do the work without detriment to his health. If he can get over the year's work in less than a year, he goes in that higher class then of course in less time—that is for the ordinary subjects—and he would take the suitable occupations that were taken in that class.

5811. CHAIRMAN.—Under the system you describe you are teaching at present children of the first standard, but you have taught second, third, fourth, fifth, and sixth?—Yes, in different years.

5812. How long do the classes hold together in one standard?—Right away through to standard six.

5813. It takes a year for each standard?—Generally.

5814. When are the changes of standard made?—At the end of each school year, which may be different for every school.

5815. When will your school year end?—30th of April; and 1st of May we begin another standard.

5816. What subjects do you teach in addition to this special Sloyd work?—The ordinary subjects—reading, writing, arithmetic, and geography.

5817. Rev. Dr. EVANS.—You don't take grammar at all?—No, not as grammar; in standard five composition comes in. I think personally it would be better to take grammar the whole way through.

5818. But you do teach grammar in connection with your composition?—Yes, and in connection again with answers to questions.

5819. What class of children attend?—A fairly average class. We have got some good ones and some bad ones.

5820. What occupation are these children likely to go on to?—Some of them go in as clerks, some go into trades of different kinds, and many of them work on the railway in various capacities.

5821. And who is it that decides what subjects will be taught in any school?—The head master.

5822. Of course he has some reason for preferring geography to grammar, for excluding one subject and taking the other?—Yes.

5823. What was his reason for excluding grammar?—I can't tell you.

5824. Did you notice whether the manual instruction that you give in the school in any way lessens the efficiency of the school in literary subjects?—I think it increases it if anything. It encourages increased attention. A boy must attend very carefully to get this work done in a proper way, and the attention so encouraged will extend itself to his other subjects. I think we have generally found that true.

5825. CHAIRMAN.—Is it fair to ask you do they talk better English or worse English since the teaching of grammar was given up?—I don't think it made any difference although we did not teach grammar as grammar; we see to the use of proper expressions in answers to questions.

5826. Captain SHAW.—What about the training of teachers; at present how are teachers trained in Sloyd?—In manual work generally they are trained in centres under the London School Board. They are taken in evening and in Saturday classes.

5827. Is this for woodwork?—And for cardboard work. Throughout the country where the Boards have taken up manual work they are finding a difficulty in obtaining trained teachers who will take up manual work, for it is not introduced really to any great extent in training colleges at all. Two out of the forty-five training colleges have it in a somewhat limited form, but until manual work is taken up in training colleges we will still have difficulty of obtaining primary teachers who will teach manual work, and who are properly qualified.

5828. You know of the work of the Joint Committee?—Yes, somewhat.

5829. We got some evidence from Sir Philip Magnus with reference to the large number of teachers trained annually by the City and Guilds of London Institute. Is that a satisfactory way?—I think so, as far as it goes.

5830. Do you think that would be a sufficient training?—I do not. I went there, and I got nothing about the the growth of timber and the use of tools.

5831. Where were you trained?—At the City and Guilds Schools, Exhibition Road. There was not a word of it.

5832. Does the written examination cover it?—Yes; only I should say with regard to that, I took the teachers' certificate for manual work in wood the first year when it was instituted, and I took the second year's examination without doing the first, and I took that without attending the classes particularly for it, and unless I had had some supplementary reading and study I could not have taken that from the information at the City and Guilds School.

5833. You say this should be done at the training college?—Yes; they should have a thorough course in educational work as affecting principles; the nature, preparation, and use of tools, and growth, nature, and use of wood.

5834. It would be necessary to limit that subject considerably in its application to manual instruction or you may waste your whole time in teaching all that to the children?—You use a few ordinary kinds of wood. These will be taken as specimens, and, besides, the teacher who is going to take charge of the classes should know how to store his timber,

5835. Is knowledge of the nature and growth of timber an ordinary part of the Sloyd system?—I think it is; you will find it in the text-books, but I don't like to refer to Sloyd especially. I regard it as covering the educational principles. It is useful for children who are using wood to know something of its nature.

5836. Chairman.—The growth of timber would come in in connection with fibre, as affecting the direction in which the fibre would lie?—Yes.

5837. Captain Shaw.—Have you been through the course at Naas?—Yes.

5838. That is entirely attended by teachers?—Artizans who are teaching in the schools go.

5839. It is entirely a training school for teachers at present?—Yes.

5840. And the people who go there go there of their own free will, and are enthusiastic?—Yes.

5841. And are likely to make the best use of their time there?—Yes, and often when they come back also.

5842. How long does it take to make a complete and satisfactory course of models?—The course is six weeks. I made thirty-one myself. I think that would be slightly over the average. That would be 200 hours at the bench and about forty or fifty hours given up to educational lectures.

5843. It would be beyond the possibility of a boy to have a complete Sloyd course in his school life?—Yes, but his object is not to complete those models. He is having a course of training if he does not complete the models. The object is not to make those models, but to make him a different being.

5844. Suppose we take the first model. How long does that take to make?—I have known boys here to do it in four hours. I should say that is about the average time.

5845. Do they produce an accurate model?—Yes

5846. Have you had much experience of Sloyd teaching throughout the country?—I have taught a hundred boys for six months in Sloyd models, not the modified Sloyd. I would like to have done that, but I took simply the Nääs models, and for six months I had some boys in the work of the London School Board.

5847. Did you insist upon those boys going through the dimensions of millemetres?—It was only necessary to insist in a few cases. Most boys can do it sufficiently correct without any trouble.

5848. Is this before they finish with the file or sand paper?—Yes, it is cut down to the size as far as length is concerned before the sand paper touches it, and five minutes should be quite sufficient for the sand paper used in the first model—the window wedge. Sand paper is not intended in any way as a tool.

5849. No; but as a matter of fact it comes into considerable play?—I don't think very considerable. The teacher could allow it to be used very considerably. I have known teachers who have allowed it very considerably without sufficient supervision.

5850. Chairman.—Don't you put a temptation in the way of a careless teacher by allowing sand paper to be used at all?—Well, perhaps, more or less; but then there is the other question—is he the proper teacher to have charge of it if he does not do it carefully.

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5851. Captain Shaw.—Do other models take longer to complete?—Some of them longer and some of them shorter, because the plane very quickly comes in. The knife is simply the initial tool, and after the first two models it is used very little, and sand paper is used less and less. After the first few models it is not used very much. The whole principle is never to use sand paper after the plane.

5852. As a matter of fact you can never get through any models in one lesson?—Oh, yes, more than one can be done. One occurs to me at once, the square flower stick. That is almost entirely done with the plane. The tools are English, with the single exception of the knife.

5853. Is there any particular virtue in the knife beyond its being a national instrument?—Yes, I think so, it is the least mechanical of tools to begin with.

5854. Do you think it is easier to teach the child with the least mechanical tool, before you begin to teach the more mechanical tool?—There is another thing, it is the tool he has most control over.

5855. That might not apply to Ireland where they have not knives?—Most of them have used knives, and they are more familar with it than with anything else.

5856. You devised this card-board making yourself?—Mr. Hudson and I.

5857. There you see you get mechanical aid and don't have any free cuts with the knife as it appears to me?—No.

5858. What is the reason of that?—You cannot very well do so either in card-board or paper. They are nothing like the same material as wood.

5859. They can be cut entirely without mechanical aid—we saw it done in Birmingham—straight lines and curved lines. Would not that be more careful training if you did not employ mechanical aid in the card-board work?—I don't think so; not for accuracy and carefulness.

5860. I cannot reconcile the two principles. In Sloyd you say the knife is essential because you haven't mechanical assistance, but in card-board work you say it is necessary to have mechanical assistance?—I don't see how the knife can be used in the same way in card-board work as in woodwork. The same manipulation cannot come in; you cannot have the same free movement.

5861. You can confine the movement at once by putting on the ruler?—Card-board work is for children of younger years, then wood work from ten onwards.

5862. Then, as regards the initial model in England, the model is the same rectangular block on which the plane and gauge is used. Isn't this a more easily learned exercise than this somewhat difficult Swedish model?—I don't think so. I think the gauge is the most difficult tool of the whole of the woodwork tools. I find it so, not only with boys, but with older people. Teachers find very great difficulty in using the gauge.

5863. How would you compare the difficulty in using the gauge with the difficulty in using the knife?—From experience I should say it is more difficult. I have found greater difficulty in getting people to use the gauge than in getting them to use the knife.

5864. There is only one way of using the gauge if you know the right way at once?—The great difficulty is to produce a good, straight, firm line with it.

5865. Then it is more difficult than learning all the various cuts with the knife in the Sloyd system?—I think it is more difficult than the use of the knife. I find it more difficult in teaching the proper use of the gauge, to produce straight firm lines, than to teach the use of the knife.

5866. At any rate the English system has the advantage that the drawing is simple, and more comprehensible by the child?—One form of drawing only. Freehand drawing is entirely left out.

5867. It is taught as a separate subject in the

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English schools?—If the manual training is taught in connection with drawing, freehand might well come in, I think, and you don't teach manual work without drawing.

5868. Some of the Sloyd models are a great deal more difficult for a child to draw than most of the things he draws in the abstract way that you object to, for instance, a table, an axe handle, or a spoon?—He will have to draw curves in freehand.

5869. Mr. REDINGTON.—You said just now that you thought teachers of manual work should be trained in colleges. How would you train teachers who have already charge of schools?—You mean rural teachers. I think there should be a teacher going round from village to village, or town to town, and holding classes during the week in the evenings, and on Saturdays.

5870. You would not allow a teacher to give instruction in woodwork unless he had undergone a course under the peripatetic teacher?—Perhaps I should not ask him to go through the whole course.

5871. But rather utilise what he himself is learning?—Yes. Of course it depends very much upon the time you require his classes to begin. If you began to train him before you require his classes to begin, that would give more time for his training.

5872. How many lessons given by a peripatetic teacher, say on Saturdays, to rural teachers, would make them competent to teach the card-board system you have outlined to us?—They could begin after eight or ten lessons.

5873. How many lectures would complete the course?—It would generally finish in perhaps twenty-four lessons.

5874. CHAIRMAN.—Half a year?—Yes.

5875. Mr. REDINGTON.—Therefore one lesson a week for twenty-four weeks would enable that teacher to be competent to teach his pupils card-board work?—I think so.

5876. CHAIRMAN.—Up to what stage?—I think they would almost finish. They would very nearly, if not quite, go through that course.

5878. Mr. REDINGTON.—Have you any experience of rural schools where this has been introduced?—I have not. I don't think it is generally taken. It is an optional subject altogether, and they don't take it very often, because of the expense attending it. Rural schools are poor schools, and object on account of the expense. Besides there is another scheme for the training of teachers in these subjects.

5879. Do you find that boys are fond of working in card-board?—Oh, yes, they like it very much indeed.

5880. Some of the things produced no doubt are useful, but some are not. Do they take much interest in producing useless objects?—It is very interesting to see them doing even the earlier exercises and objects.

5881. I am not talking of the educational value, but of whether the boys like it?—Yes, my own experience shows it to be so.

5882. CHAIRMAN.—They take an interest in seeing the growth of the object?—Yes, from the flat card-board to the cube.

5883. Mr. REDINGTON.—How many years have you taught this card-board work in schools?—Three or four.

5884. And what subjects are dropped in order to make room for it?—None. We generally take an average afternoon of the time table from the general revision of work, and it has been put there.

5885. CHAIRMAN.—You have it done within school hours?—Yes—9 to 12 and 2 to 4.30.

5886. Mr. REDINGTON.—Do the other teachers in the school teach card-board work to the pupils?—Two of them do.

5887. What happens with regard to the classes in charge of the others?—Two other classes are doing colour work, and the other two take woodwork.

5888. Is that brush-work?—They don't do it with the brush, but powdered coloured chalk and stumps.

5889. Then that class will only learn card board work?—Yes, I don't like that. I should have one system of suitable occupations through the school up to Standard four.

5891. Colour work is not considered manual work?—No, the putting on of colour with a stump; classed as "suitable occupations."

5892. Rev. Dr. EVANS.—What is the cost of a term at Naas, I mean to teachers like you that visit there?—Naas is not an ordinary training place in the general acceptance of the term. It is a place of invitation. The whole thing is a memorial to Herr Abrahamson's wife, who died twenty-five years ago. Tuition and the use of tools are all given, and lodgings for six weeks is provided for 12*s.* or 15*s.* for the whole time, and food costs 13*d.* a day. Say £13 or £14 would cover the whole six weeks, including the passage from Hull or London

5893. Is the instruction there given in different languages?—The lectures are in different languages, Swedish at one time, English at another, and generally in summer course some are given in French and Spanish.

5894. CHAIRMAN.—But they give two special courses in the year to English-speaking candidates?—The courses beginning June and August cover that. There are two hours a day lectures in English. I knew a Hungarian teacher who went there and he could understand neither English nor Swedish, and the professor took him privately and gave him lessons in his own language.

5895. Rev. Dr. EVANS. — When the English teachers go for a term and return to their work, are they paid better?—No, I don't think so, except in so far as they get extra money for the extra classes they take up.

5896. CHAIRMAN.—Then the managers pay them?—Sometimes, and they might take up classes privately.

5897. Rev. Dr. EVANS.—They have no financial advantage to induce them to go. It is purely their educational zeal?—Yes.

5898. CHAIRMAN.—Many teachers in England are very zealous for education?—Very many have been there.

5899. They look beyond their mere personal interest?—Yes, trying to do the very best for the education of the children they have charge of.

5900. Mr. HARRINGTON.—Have you had experience of manual work as carried on in France and Belgium?—No, sir.

5901. You have had in Germany?—Yes, I was at the training college in Leipsic I think the English system is better than the German in woodwork particularly. I saw some work there I did not like at all.

5902. You think the system carried on here in London is about as good as it can be?—No, I think the general system in woodwork could be improved in several ways. It could be more easily graded.

5903. You said there was woodwork at Leipsic that you didn't like. Did you think it was too much of a decorative character?—No; it was the character of the work that was allowed to go through the classes. Some of the students did exceedingly bad work. I tested a bracket which was a quarter of an inch out of the square, and the teacher allowed that to go through.

5904. Is it not a fundamental principle of the Swedish Sloyd that the work done should be as little as possible of a decorative character, the idea being to give the children a respect, and to a certain extent a love for manual occupation, looking to the general industrial section of the population, and it is considered that decorative work is not so useful in that direction?—That is a fundamental principle.

5905. And they might entertain a contempt for manual labour, and look down on the people engaged in it?—They might decorate it if they had done the rough work.

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5906. Decoration is sometimes used as a cover for slovenly work. Perhaps you can explain to us what this report is that has come before us in several ways—"Joint Report on Manual Training. Fourth Annual Report of the Joint Committee of the School Board, London, the City and Guilds of London, and the Company of Drapers." I think you told us you took a certificate under this?—No; mine was under the City and Guilds of London Institute.

5907. Do you know anything of the working of this Joint Committee?—It was under that the work was first developed in London, simply because the London School Board themselves had no power to provide the funds.

5908. Now that the London Board has taken charge of the work, I suppose the Joint Committee has taken a secondary place?—I can't answer that.

5909. Mr. Redington.—I suppose one of the effects of this woodwork is that it interests boys so much that after school-hours they devote some time to it in their own homes?—They do, certainly.

5910. And thus it keeps them out of harm's way, as it gives them an occupation in the evenings?—Yes; we have found that over and over again. The boys produce some of these cardboard things, and send them into local exhibitions.

5911. Chairman.—There was some question about the boys cutting themselves. Do you think there is more danger of accidents connected with the knife than with a saw?—I do not. I had boys doing Sloyd work for six months, and only on one occasion had I more than the skin cut during the whole time.

5912. Boys are very much in the habit of using knives on their own account?—Yes.

5913. And I suppose it would be an advantage, even as regards the prevention of accidents, to have them trained in the use of the knife?—I think so.

5914. You think there would be fewer accidents if the use of the knife was introduced under proper instruction in the schools than there are among boys from undisciplined use of the knife at present?—If I could conduct the classes without having to earn results fees, I would teach them all the use of the knife.

5915. Captain Shaw.—Mr Barter said some cuts were especially dangerous, that one is made straight to the chest?—That is directly contrary to the principle that you should cut from the person. Mr. Barter may have seen it done, but it should not be done.

5916. Rev. Dr. Evans.—Have you found that boys shun schools where manual training is being taught?—No, nothing of the kind has come under my notice. Many boys we have found, when they win prizes at the different exhibitions, have spent the money in getting tools for themselves.

5917. Chairman.—You think they appreciate the educational value of it?—Yes, I think, they take a great interest in it, and wish to carry it on for themselves.

Mr. Joseph Vaughan, Organising Teacher of Hand and Eye Training under the School Board for London, examined.

Mr. Joseph Vaughan.

5918. Chairman.—You are an organising teacher of hand and eye training?—Yes.

5919. In connection with the London School Board?—Yes.

5920. You have no connection with the Science and Art Department?—No.

5921. Have you any connection with the London Joint Committee on Manual Training?—No; but I know the conditions under which that Body was called into existence, and the conditions under which they are still working.

5922. They came into existence at a time when there was no provision for manual training under the Education Department?—Yes.

5923. Of course they made grants out of funds of their own?—Yes, and they have granted from time to time until now thousands of pounds to the London School Board: the Committee is a Joint Committee of the School Board and of the City and Guilds of London.

5924. The grant began at £1,000 and it is now £1,250: that is a very useful fund for the London School Board to have for making experiments?—That was the only way it had of making experiments.

5925. Is that fund in the hands of the Joint Committee or in the hands of the London School Board?—Of the Joint Committee, which is composed partly of Members of the City and Guilds of London Institute and partly of the School Board.

5926. This Joint Committee is an experimental body?—Yes; they have initiated experiments in woodwork, metal work, cookery, laundry, and housewifery.

5927. And when the importance of a subject on which they have experimented is recognised by the Department, it can be taken up by the schools?—Yes, that has generally been so.

5928. Do you know anything of the reports issued by that Committee—do you know the examinations held by them?—Yes, there are two examiners. There is an examination in practical work by Mr. George Ricks, and there is a report on drawing, writing, and practical examination by Mr. Sydney Wells.

5929. What is the nature of the examination held by these gentlemen?—I can easily get for you a report which will give the questions set at that examination.

5930. Captain Shaw.—Will you tell us whom they examine?—They examine boys. With girls housewifery is not taken in yet, as an examination subject.

5931. Chairman.—What schools are those children in?—The grant from the City and Guilds and the Drapers' Company are still used for about half a dozen classes or more.

5932. I have a list here of six centres where instruction to boys in woodwork is given. That means that there are six centres under the working of this Joint Committee?—Yes, and the pupils are drawn from both Board and voluntary schools.

5933. There are centres under the School Board, but not in connection with the foregoing system?—Yes, Mr. Barter has the supervision of all centres for manual instruction.

5934. Is the expense borne by the Joint Committee?—No.

5935. What is the advantage of keeping up a section of work like this, now that the School Board has taken the work on?—There is no advantage at all, except where experiments are still being made.

5936. Captain Shaw.—The School Board have not yet provided sufficient centres for all schools, and these centres still supply a useful purpose?—Yes. Summer Road is a centre built by the Board, and other boys go there besides those under the Joint Committee.

5937. Chairman.—It is not merely that it deals with six schools, but it deals with six schools that are not under the common general organisation for technical work in London?—Quite so.

5938. So that anything unfavourable in the Report of this Committee does not reflect on the general system of manual education in London schools?—Not at all.

5939. There are over 150 centres for woodwork in London, that is to say, 110 centres, and about forty of these are double centres, and this Report deals with only six; so that it is altogether an exceptional thing, and it would be a mistake to draw any inference from the nature of this report as to the work generally done in London?—Quite so.

5940. You promised to tell us something of the origin of this work of the Joint Committee?—I don't

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London.
March 25, 1897.
Mr. Joseph Vaughan.

know whether you have yet had your attention called to that particular report (*produced*).

5941. This is a report of the School Board for London in March, 1888, giving the report of a Special Committee of the Board on subjects and modes of instruction in Board schools. This apparently has reference not merely to manual instruction, but to all branches of school work?—Chiefly to manual instruction, nine tenths refers simply to manual instruction, beginning with kindergarten.

5942. I see it deals especially with drawing and manual work, both in its earlier and in its more advanced stages?—I think the Committee grew out of the report of one of the examiners for the scholarships which were given by the Board, the City and Guilds, and various Companies. Mr Pinches examined the children for the scholarships, and his report on the examination was that "the children were mere machines."

5943. The work in the London schools up to that time had been merely of a bookish character?—Yes, mere cram for examinations.

5944. This Committee of the School Board and that Report in 1888 is probably the Committee Sir Philip Magnus told us of?—Yes; he gave evidence before the Committee, and I think it is probable that but for those proceedings London would be in about the same condition with respect to manual work, as you in Ireland are now: there is just the kind of evidence in the Report which would be of value to you. The evidence was very strongly in favour of developing the kindergarten system of manual instruction.

5945. The evidence given before that Committee was strongly in favour, first, of developing the kindergarten method as a basis for manual training proper?—Yes.

5946. And all the witnesses stated, I believe, that the system that was then in existence was too bookish?—Yes, that was Professor Huxley's remark.

5947. That it was too little practical, and that it discouraged children from taking the first step in an industrial career?—Yes; they had never been accustomed to use their hands, so they didn't like to go to manual work; the tendency was towards clerkships.

5948. There was a great break at that time between the infant and senior classes. Kindergarten had been introduced into the infant classes, but it was not followed up by anything practical in the subsequent grades; it led to nothing?—No, and directly the children were promoted to senior classes they were treated as quite different beings.

5949. And that was especially so in places like London where there were special infants' departments?—Yes. The system of the junior mixed schools is very rapidly growing now, and these will form a connecting link between the infant school and the senior school.

5950. The Committee, I suppose, came to the conclusion that it would be well to introduce reforms in that direction?—Yes, especially manual work.

5951. Did they take any practical step to carry out that view?—Yes, the first practical step was the lectures given to teachers by Mr. Ricks.

5952. With the view of opening their minds and enabling them to grasp the object and advantages of this system?—Yes, the first lectures were entirely theoretical. Directly these preliminary lectures were over, classes were formed so that the teachers could do practical work.

5953. Then experiments were tried in a few schools?—Yes.

5954. There were some instructions issued by the Education Department?—That was in 1892. We first began the teachers' classes in 1889; and in 1895, after we had tried experiments, and experiments had been tried in various other places, the Education Department investigated the whole system of hand and eye training, and issued this circular (*produced*).

5955. Was the circular in favour of the change being made?—Distinctly. It is now printed at the end of the Code.

5956. Previous to this, I think Sir Philip Magnus told us, the Education Department had surcharged the School Board for expenses incurred in their effort to introduce practical training into the schools?—In 1892 they did surcharge them, and this was the reason for the paragraph being inserted in the Code about "organizing teachers."

5957. This circular is dated 1896. That was not the first time the Department had recognised the work?—No; but it was the first time any special circular had been issued on the manual occupations of the three lowest standards in the school.

5958. But, previous to this, the Education Department had fully recognised the importance of manual work?—Yes, and special mention had been made about its value as a means of education in the "Instructions to Inspectors" for several years.

5959. So that now this branch is recognised in all the departments of the school, from the infant to the ex-seventh?—Quite so, some form of manual instruction. The Code of two years ago proposed to make object lessons and suitable occupations compulsory in every school. But the teachers of schools felt that the time table under the present conditions of work was already sufficiently crowded and objected to it. A deputation waited on the Vice-President, who agreed to leave them for the time optional.

5960. This branch of work comes in under the technical name of suitable occupations?—Yes, that is the term applied to it under the Code.

5961. And it is under that head it made its way into the system of grants?—Yes.

5962. There is one point the witnesses have not made clear so far—the choice of class subjects which schools can take. Probably there are eight or ten. This is a matter that it is important we should at least get a skeleton of. The subjects in the English codes seem to be divided into three classes. There are elementary subjects, class subjects, and specific subjects?—Quite so.

5963. The elementary subjects, what are they?—Obligatory—reading, writing, and arithmetic, needlework for girls; drawing for boys; object lessons in standards one, two, and three, and one of the class subjects.

5964. That is the obligatory range of specified subjects. There are some subjects of obligation in addition to them. Is it not of obligation that the school should have one other subject taken out of a list?—The list contains eight subjects (see Code, page 4), but they are not compulsory.

5965. These are called class subjects?—Yes.

5966. Object lessons are now obligatory in standards one, two, and three?—Yes.

5967. Above standard four, when object lessons cease to be obligatory, then there are two class subjects. Object lessons may be one of these?—No; they cannot take object lessons above standard three, but they may practically take the same kind of work as elementary science up to standard seven.

5968. Must two class subjects come in?—Not necessarily. They may take two, and two only. One only is obligatory.

5969. Of these class subjects there must then be one, and there may be two. The payment, I understand, is made as a capitation payment on the average number in attendance in the class?—Yes. There are a good many schools that really teach more than two class subjects, but they cannot present them to the Department for payment.

5970. Thirdly, the specific subjects come in. These I do not quite understand. They appear to be subjects in which the payment is not made upon the class as a whole, but upon the answering of the individual?

Captain **Shaw**.—It is altered now; they are being paid on attendance.

5971. **Chairman**.—How does this particular subject of "suitable occupations" stand in reference to pay-

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ment?—I take Derby as an illustration. The schools in Derby take object lessons for their first class subject, and suitable occupations as their second class subject. The Board, I suppose, felt that it was better to take them as a form of manual instruction leading up to woodwork, so they get a grant for manual instruction for the whole of the boys from Standard one upwards, except for Standard four.

5972. What do they take in Standard four?—More advanced paper work with cardboard work in addition, but no grant is obtained for this.

5973. So that, as far as payment goes, there is a break in Standard four?—Yes.

5974. That seems to be a defect?—Yes, decidedly so.

5975. But the subject can be taken up as a "suitable occupation"?—Yes.

5976. I am speaking of payment. Can it be taken in Standard four as a suitable occupation?—No, not for payment.

5977. In what Standards are "suitable occupations" the subject of a grant?—Only in one, two, and three.

5978. So I understood. Now let me ask you some general questions. The aim of the introduction of this branch of work in schools, what was it—to develop manual dexterity?—Yes, to develop manual dexterity and accuracy, and to round off the education.

5979 The development of manual dexterity is not an object kept in view merely with reference to boys and girls going to trades?—Oh, no. I think that whatever they may be called upon to do afterwards, the manual work would have a useful effect. They cannot use their hands without using their brains.

5980. Accuracy is also a matter of great importance: you aim also at cultivating the sense of design?—We have paid particular attention to that as far as our system of manual occupations or suitable occupations is concerned. We have taken as much notice of the artistic development as the manual dexterity.

5981. Design and appreciation of form and proportion tend to awaken the artistic faculties generally?—Yes. I have tried to recognise that whatever manual work is done it adds considerably to its value if it is also artistic. You may put it the other way—it is no matter how good the work is, unless there is something artistic about it in form, or colour, or proportion.

5982. You also recognise that it is useful to cultivate a respect for manual work?—Yes, and the skill gained is of great utility.

5983. Not to have people looking down upon those engaged in manual occupations as if they were engaged in something not quite respectable?—I dare say we are getting over it now, but that has been the tendency.

5984. One of the results of introducing manual work into the schools would be to lessen that unfortunate tendency?—I quite think so. The boys grow to have a respect for good work, and find that there is much more in it than they thought.

5985. I may also assume that in all this branch of educational work you have in view not the direct bearing of this work on any particular trade or occupation?—No, but I think it is well to bear in mind, while the children are engaged in these occupations, that they will probably, at some time, have to use their artistic faculties and to use their hands. I don't think it is well to lose sight altogether of what their calling may be in afterlife.

5986. You take drawing as so much a matter of course that you have made no reference to it. But it is an important subject of our inquiry. How long is it since drawing was made compulsory in England in the boys' schools?—For the last five years.

Captain SHAW.—Since 1892.

Witness.—Drawing is an integral part of our manual work from its commencement. That is where we differ from most people in the North. Drawing and manual work should go hand in hand.

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5987. CHAIRMAN.—This is a specimen of the work to be done in Standard one. It seems to consist in pasting down pieces of coloured paper on cardboard?—This is the process—they first have a piece of paper and fold it. We don't take that folding for the sake of the folding, but as the basis of drawing and design.

5988. Is this piece of paper absolutely unruled when given to the child?—Yes.

5989. The paper Mr. Cooke showed us was ruled?—Yes, but that was to assist the child to cut correctly to line. The folding and drawing, to produce a working sketch as it were, comes as the first step.

5990. Is it folded then by the children into squares?—Yes. I shall be very glad to put before the Commission a complete set, showing the various stages.

5991. The folding being done in the first instance, what comes next?—The child then adds the necessary lines (using the fold lines as a basis), and produces a working drawing. If you were to give a young child a piece of plain paper and a ruler, it could not make a drawing like that: it would be too difficult.

5992. But they can make it most accurate by folding?—Yes.

5993. And the result is the same as if these lines had been drawn accurately with a ruler?—Quite. Then we get drawing into it afterwards by letting them use a ruler over certain of the lines.

5994. When the main lines are made by the folds, these are emphasised with pencil?—Yes, but only the lines necessary to produce the pattern. Then they shade the spaces by freehand or pick them out in colour, so as to produce a pattern which is afterwards worked out in a more concrete form in coloured papers.

Mr. Cooke.—What I do is practically what Mr. Vaughan is explaining.

5995. Mr. REDINGTON.—Is not that more difficult than what you showed us, because the boy has to fold and make the line which in your plan is given to him?

Mr. Cooke.—He has to cut the line accurately.

5996. CHAIRMAN *to Witness.*—You say the next stage is that the child makes a freehand drawing of what has been done?—Yes.

5997. Does the child in his drawing indicate the different colours by any conventional system of shading?—He tries sometimes to indicate the colours, but it is not essential.

5998. Distinguishing between the groundwork and the object that is laid on?—Yes, but the main object is to accustom the child to mass. Proportion in drawing is usually weak. They look at the line, not the mass. They do not see the thing as a whole, but having a coloured example to draw from, corrects this.

5999. That exercise is worked out in a variety of forms?—Yes.

6000. After this comes designing in coloured paper—of course the patterns are given to the children?—Sometimes; but sometimes they make original designs.

6001. Do you make them in every case reproduce the working drawing?—Yes, in every stage.

6002. And where there are three colours they have three sets of conventional shading to represent the colours?—Yes, vertical lines would represent one colour, and horizontal another. But at the end of every stage we got them to make an original design (*producing examples*).

6003. Mr. REDINGTON.—What are the squares on the paper there?—They are printed on the paper to assist the child in cutting accurately,

6004.—Does the boy do any work himself with his pencil before he pastes on the paper?—Not on the coloured paper—only on the white.

6005. CHAIRMAN.—They fold the paper into sixteen squares?—That is but one example. We begin more elementary than that, and carry it on much further in succeeding stages.

6006. Mr. REDINGTON.—After it is folded a design is made with a ruler and a pencil?—Yes. Then the

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children have the coloured papers given out to them, and they cut the various forms needed to produce that pattern.

6007. CHAIRMAN.—They first cut the groundwork and paste it down: then they cut the coloured pieces that are to be superimposed?—Yes. This is an example of Standard 1 (*produced*). We go a little bit further in Standard 2. The child has had a template to cut the curved forms, because such young children cannot cut such forms by freehand. At a later stage the pieces are laid side by side instead of being superimposed.

6008. That would correspond somewhat with parqueteric work?—Yes. Here is Standard 3 (*produced*) which really teaches the elements of design.

6009. Is there any book in which all this is explained?—Yes, books which Mr. Ricks and I have written—"Designing in Coloured Paper, Modelling in Cardboard, and Colour work, by Mr Ricks and Mr. Vaughan. Cassells"; and "Brush-drawing," by myself: "Moffatt and Page." When we come to colour-work many schools only take one branch, but we like them to take two if possible. That (*produced*) is the work of Standard 1. This is wholly done by the children. These are not the worst, and I particularly asked the teacher not to give me the best.

6010. All this work is done accurately to measure?—Yes, but in Standard 3 they use the freehand drawing.

6011. This was done with a template; there are no openings in the template?—No.

6012. How did the boy draw this ellipse?—He drew the outer ellipse by aid of the template, and all the rest by freehand. Now that (*produced*) is really the next thing done in Standard 4. They still have some aid in the template. That (*produced*) was simply direct brush-work. I must put this (*produced*) to represent the higher work, though it is all teachers' work. The children have not got to the stage when they thoroughly understand colour. These exercises have been to teach them manipulation of colour.

6013. Mr. REMINGTON.—Do you allow them to fill up any of these panels with their own designs?—Yes, and especially the children who show any originality.

6014. CHAIRMAN.—The next stage is brush-work?—Yes (*specimens produced*)

6015. Captain SHAW.—They don't have any pencil aid before they start brush-work?—No. I deprecate the drawing of the outlines and filling in afterwards, as they get practice in this in the ordinary colour-work. Brush-drawing is really developing the artistic side of hand and eye training.

6016 CHAIRMAN.—Cardboard work comes next? Mr. Cooke showed you some elementary specimens, but we go on a little further (*specimens produced*).

6017. This is brush-work superimposed on the cardboard?—Yes. I looked at what Mr Cooke had brought, and got a few specimens to supplement his series This is an extremely important feature of cardboard work for teaching solid geometry. Here (*produced*) is a conic section.

6018. Rev. Dr. EVANS.—Would you teach the names of these parts?—I think not unless they were taking another subject in the school which needed the name.

6019. CHAIRMAN.—But you would show them how the various conic sections were made by cutting through a cone?—Yes

6020. Now, as to clay-work?—I have brought a drawing in the earlier stages. Instead of giving them clay-work from the purely artistic point of view, we still give them some measurements. They make a slab of clay and cut that up.

6021. Into geometrical patterns?—Yes, and to form simple architectural features. This exercise is of a freer type to give the children some idea of form.

6022. Then it is a development of cardboard?—No; scarcely that. That is such work as they would do in Standard 1.

6023. Captain SHAW.—Is that modelled with the fingers?—Not to any extent. They make a slab and cut it up with a modelling tool.

6024. CHAIRMAN.—Drawing is used in connection with all these branches?—Yes. We make that a fundamental idea, only we have to recognise that the children of Standards 1 and 2 cannot make their own drawings unaided, and that is the reason why we have had to give them some aid to make their drawing.

6025. But still you leave them something in the way of drawing to do?—As much as possible.

6026. Then that varied process is gone through with a view of helping them in the first stages of drawing?—Quite so, and the value of having the mass instead of the line to look at is very helpful.

6027. You work out all these different branches on the basis of kindergarten work?—Yes, it is all a development of the kindergarten.

6028. And apparently you choose the subjects in reference to the possibility of working on that line?—Yes, taking those things that grow out of the kindergarten.

6029. I suppose you also look to the higher manual work which is to follow?—Yes, we wish to make a connecting link between the kindergarten and the higher manual training

6030. So you aim at a system of gradation for the whole work of the school from beginning to end?—Yes, so that there should be a gradual development from Standard 1 upwards.

6031. In Standard 1, which branch of this work would they take?—They would probably take the paper work which trains them to accuracy and sense of proportion and fitness, or working with coloured chalk. Then they may take with that brush-drawing or clay work, which would give a freer expression

6032. And a certain manual dexterity also?—Yes; the various faculties can scarcely be trained by any one occupation. They might not necessarily take paper work; some schools would leave out this, and take colour work and brush-drawing.

6033. In Standard 3?—If a school took paper work, they would most likely take it in 1, 2, and 3, and the same with other subjects. and not change the work in each standard.

6034. In Standard 4, what do they do?—They take one or more of the various branches, and usually introduce cardboard work.

6035. But in this case it is a purely voluntary work; it is not recognised by the Department as a paying subject?—Not under any conditions; it is not recognised as a subject for a grant in Standard 4.

6036. In Standard 4 you aim at having the subject continued?—Yes, and to bring in the application of geometry with instruments.

6037. Brush-drawing and clay-modelling?—They would not take them all. · The vast majority of schools take only one subject, but some take two or three.

6039. How is the training of teachers for all this to be managed; you have at present a large number of classes in various subjects; how are these classes worked up?—I have the organisation of all the classes, and I have a staff of sixteen or seventeen instructors. They are held in the evening.

6040. I see the expression is now officially recognised in London—"hand and eye training" as distinguished from woodwork?—Yes. I think it is a very good distinction to draw too.

6041. It is intelligible enough, and in practice it is very convenient, but etymologically it is a somewhat odd way of drawing a distinction—calling one thing hand training, and the other manual training, seeing that we use a Latin word in one case, and an English word in another, both meaning the same thing?—Yes, it is; but it serves to define the character of the work.

6042. Mr. REMINGTON.—About brush-work and coloured chalk—are these two different courses taken in different schools?—Yes, but they may take them

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both. Coloured chalk generally is done in the First, Second and Third standards, and then water colour afterwards, in the higher standards. Both these branches, however, are embraced under the head of "Colour-work." "Brush-work" is entirely different, and means drawing direct with the brush, usually for the purpose of decoration.

6043. If in brush work the design was first drawn and afterwards filled in with colour, would it not be more accurate?—This is done in "Colour-work," but not in "Brush-work." A design is frequently drawn in pencil, then coloured with various flat or graduated washes of colour. These spaces may afterwards be decorated with brush-work. When you are drawing with a brush you are limited to one colour.

6044. What is the advantage of the brush system over that of drawing with a pencil and filling in?—The former cultivates a freer expression. The latter needs careful, precise work, and power to deal with a wash of colour.

6045. Chairman.—There are different faculties exercised, I suppose?—Yes. I try to combine both.

6046. Now as to the training of teachers, you were about to explain how that is managed?—We have various classes in the evening taught by instructors who have been specially trained to the work. In the last seven or eight years we have trained 6,000. We have 1,500 teachers being trained in the classes now.

6047. Have you any idea of the number of teachers in the London district?—I don't know about the voluntary schools. We have 8,000 in the Board Schools, and the voluntary teachers are allowed to come to the teachers' classes established by the Board.

6048. In how many of the Board Schools is this particular branch of work taken up?—500 or 600 departments.

6049. Have you any idea in how many voluntary schools?—I cannot give you an idea of the number.

6050. You aim at securing the co-operation of the teachers?—That is essential to any scheme.

6051. Suppose you have a teacher who does not care for this sort of thing, you try to put him to some other work?—That is done to some extent.

6052. Is such work taught in the training colleges?—At Borough Road they take a course of cardwork and woodwork.

6054. What do you consider the influence of all this practical work is on the children?—Undoubtedly for good; that seems proved beyond all doubt.

6055. You think it is not open to doubt that the time given to hand and eye training in no way hinders the progress of the child in other subjects?—I think it is quite the contrary.

6056. Is it popular with the children?—Extremely popular.

6057. We heard in some schools that there are some hours of school attendance when the attendance usually falls below the average?—Friday afternoons especially.

6058. Have you found the introduction of these branches of school work has had any useful effect on the attendance of the children?—It has been very useful indeed. I visited a school yesterday where the master said the Friday afternoon attendance was the best in the whole week. He said it was formerly one of the worst days in his school, but when they began to take some form of manual work the attendance became the best for the week. This is quite a general opinion.

6060. The Education Department makes no specific provision for manual instruction except in the fifth and sixth standards. You think it important that provision should be made throughout the whole course?—Yes; it seems to me wasting the most valuable part of the time. Thousands of children leave before the fifth standard is reached.

6061. Then in the absence of some special provision such as you have explained, there would be no provision for the manual instruction of these children?—None whatever.

6062. Have you anything to tell us about hand and eye training abroad?—I am pretty familiar with the systems pursued in various places. I visited personally schools in France—I was there in '89—and in America in 1893.

6063. Do you know anything of Germany?—I have not visited the schools in that country, but I know the system.

6064. Did you visit many schools in France?—Yes.

6065. Did you visit schools both in town and country districts?—Yes.

6066. What did you find there in the way of manual instruction?—At that time it had only been compulsory for five or six years.

6067. When was it made compulsory?—In 1882 in France.

6068. To what extent?—Every school must of necessity take it for one hour a day, for children between the ages of seven and ten; and one and a-half hours afterwards.

6069. Does that apply to small rural schools?—It applies to every school.

6070. Does it apply to schools where there is only one teacher?—It applies, I understand, to every school.

6071. Can you tell us what are the school hours in France?—Pretty much the same as ours in England in point of time; they begin earlier in the morning and leave off earlier in the afternoon.

6072. Mr. Redington.—Do you mean there are five hours a week for manual instruction?—Yes: children of seven and eight do an hour a day. After nine and ten it is more.

6075. Chairman.—Were you favourably impressed by what you saw in France?—Not as far as the work itself was concerned.

6076. Was it done on educational lines?—Yes; I think it was done on good educational lines, but perhaps I went rather too early, before the teachers themselves had got thoroughly accustomed to teach it. I saw a representation of the work at the Chicago Exhibition, so I had a good opportunity of studying the French and other systems. The character of the work by that time showed great improvement. Naturally it would take some years to get a comprehensive scheme into good working order.

6077. Did you see much actual school work in America?—Yes, I saw a great deal of school work in America.

6078. What impression did you form about it?—It is very difficult to form a general impression. Each Board makes its own curriculum, and it is not dependent upon any central authority.

6079. The States are totally independent of each other in this matter?—Not only the States, but the different Boards of Education, of which there may be many in one State.

6080. Are manual instruction and hand and eye training generally adopted?—Very largely done in the States; they are fully alive to the importance of manual instruction. At present the hand and eye training is much more widely developed than manual instruction in wood or metal.

6081. Although these bodies are not working under the control of any central authority?—Yes; they nearly all take some form of manual work from the beginning.

6082. Do they carry it out throughout the school?—Yes; the grading is slightly different to ours. The primary schools take scholars from six to twelve years of age.

6083. But they do grade it?—Yes. Clay work, paper folding and cutting are most generally taken.

6084. Mr. Redington.—You think it should be worked from a centre?—Yes, I think it would be

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well if they had some central control, perhaps not as much as we have

6085. Chairman.—You could have central control, at the same time giving an option for individual modifications?—Yes.

6086. Mr. Redington.—There is too much home rule in education in America?—Yes, they are all able to run on their own particular lines, which produces some diverse systems, but, yet, education in the United States is in a most flourishing condition.

6087. Chairman.—You don't consider that the same system of manual instruction would be suitable all over the country here in England?—No, especially when they get to the higher parts of the school.

6088. Mr. Redington.—Have we much to learn from a study of the French system?—Yes, I think so. Theirs is a well graduated and comprehensive scheme. The one subject that seems universal in every country, is paper-work. We make more use of the coloured paper than the French, but they do, perhaps, more paper folding.

6089. And cardboard work?—They do cardboard work and woodwork too. Children of seven and eight do paper folding, clay modelling, colour work, wire work, and basket work, but, as I pointed out previously, they have an hour every day.

6090. Chairman.—Did you visit any rural schools?—Yes, in little villages of two and three thousand.

6091. What size schools would be there?—They would have perhaps fifty or sixty children. I made my centre not far from Evreux.

6092. And you didn't hear any complaint of the difficulty of introducing this kind of work in schools where there was only one teacher?—No.

6093. In what direction did you go from Evreux?—St. Pierre and Louviers.

6094. Mr. Redington.—Is it taught in the French training colleges?—Yes.

6095. Did you write any report in connection with your visit to France?—No, but I wrote a report when I went to America. I made a comparison between our own work and that shown by other countries.

6096. Mr. Harrington.—What was the result of your comparison?—I thought in the elementary part we were quite ahead of anything I saw in America. They are, however, progressing very rapidly. But their manual training schools are better than the schools we have here—such as the St. Louis and Chicago Manual Training Schools, and the Pratt Institute, Brooklyn.

6097. Captain Shaw.—Are they in connection with primary schools?—Not these particular schools, but the secondary schools are much more developed than we have them here. Chicago, for example, had twelve "high schools," which were attended by about 6,000 pupils, 5,000 of whom were fifteen years of age and upwards.

5098. Monsignor Molloy.—Are the colours given to the children, and are they told where to put the particular colours?—In some cases they are, but in other cases they are left entirely to themselves.

6099. In the lower standards the colours are suggested to them, and in the higher standards they are allowed to choose the combination themselves?—To a great extent, but still in the lower standards some children are allowed to select their own colours, probably not to as great an extent in the coloured chalk as in the coloured paper.

6100. Is it the idea that by training the child to use a good combination of colours the eye is trained to recognise that combination as a desirable one?—Yes, to develop their sense of good colour.

6101. And when they have been trained for some years they are allowed to choose their own colour?—Yes, theoretical instruction in colour goes hand in hand with practical work. They are taught why certain combinations are good, and why others are bad.

6102. Rev. Dr. Evans.—Do the training colleges in America give instruction in this work?—They have no proper training colleges as under our system.

6103. They are not exactly called by that name: they are called normal colleges?—But the course they undergo is so short I don't think they have much instruction in the practical work, but most teachers take courses in manual work subsequently. The American system of education takes much more notice of pedagogy than we do.

6104. Did you see their great normal school in New York?—No, but I met Dr. Shaw, the professor of Pedagogy, on many occasions.

6105. It would have been worth your while if you had seen 1,000 students together actually engaged at this work. At the Chicago Exhibition were there exhibitions of this by England?—Yes, but we had only introduced the work about three years.

6106. So that your work was not as good then as it is now?—Oh, no, not nearly so.

6107. How did you compare at the exhibition with France and Germany?—In the lower parts of the manual training, not very well, of course, but I think our wood work and clay modelling were better. England showed more of the ordinary standard work, while France and Germany depended upon their higher schools. I had a great difficulty in seeing the work from the German primary schools.

Mr. Alfred Perceval Graves, H.M. Inspector of Schools, examined.

Mr. Alfred Perceval Graves.

6109. Chairman.—You are one of Her Majesty's Inspectors of Schools, Mr. Graves?—Yes, your Grace.

6110. You have had a fairly long and a very wide experience of educational work?—Yes, I have had twenty-two years experience, I began in Manchester, and I was there for four years, then I went to Huddersfield where I had the West Riding district, it was subdivided afterwards, Halifax passing to another inspector. I remained in charge of Huddersfield, and after being there for three years I was moved to West Somerset, where I had a totally different district.

6111. You had charge there of a rural district?—Yes.

6112. From that you came on to London?—Yes, I have had four years in the district of Southwark, perhaps the poorest in the Metropolis.

6113. Before you came here as inspector you had some experience in Ireland?—I did some voluntary work; my brother Arnold and I taught a night school in Kerry when we were lads.

6114. I think you also had some experience of Limerick?—That was not until after I became a Government inspector, on visits to my father, the Bishop of Limerick.

6116. Now we come to your official experience—you had experience in Manchester from 1875 to 1879, and at that time there was very little in the nature of practical instruction in the English schools?—There was nothing, not even kindergarten.

6116. Was drawing taught?—No, drawing was not taught, at least, very rarely; I had nothing to say to it, because it was taught under the Science and Art Department only in very special schools

6117. I suppose you had some experience of the capacities of Irish children in the Manchester district?—Yes, a very wide experience of the Irish Roman Catholic schools.

6118. What opinion did you form of the capacities of the boys in those schools?—I think, considering their class and surroundings, that they were decidedly quicker and smarter than the English children.

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Perceval
Graves.

6119. Did you see anything to lead you to apprehend that they were not likely to profit by manual and practical instruction if it was introduced into the schools?—Not at all. On the contrary the difficulty was that they left school, passing the standards very rapidly, at a somewhat earlier age than the English boys would do, and then they went out to work without having any manual or technical training in the schools—nothing but book learning.

6120. We observe that the children here in England seem to pass through the standards and leave school at an earlier age than in Ireland. What do you regard as the normal age for each standard?—I should say from seven to eight years for standard 1, and you may say a year more for each higher standard.

6121. So that by thirteen you would expect them to be through?—Yes.

6122. After four years in Manchester you passed to Huddersfield; you were there from 1879 to 1882?—Yes.

6123. At that time was there anything in the nature of manual instruction in the schools?—Kindergarten was coming in, and all the Board schools at any rate were equipped with kindergarten apparatus, and I was particularly appealed to as to whether I thought it would be worth their while to take it as a practical experiment. I said that personally I should greatly like to see them take it up, and they accordingly did take up kindergarten. Classes were started, not only for the Board school teachers, but for the voluntary teachers, because there was a very pleasant accord between the teachers of all the schools. Thus the voluntary and the Board school teachers got lessons and qualified themselves to teach kindergarten where they had not already had a preparatory training in that subject.

6124. In that district was there not something in the nature of a confederation between the teachers of the voluntary schools and the Board schools?—Not exactly. There was a federation of managers of voluntary schools which was formed in order to enable them to hold their own against the Board schools which were going to the front, and were better equipped, and were better staffed, and in every way depreciating the voluntary schools.

6125. You think that that system worked fairly well?—You will get a full account of that in the evidence that I gave before the Royal Commission in 1887.

6126. Was that a Commission of which Cardinal Manning was a member, and the Prince of Wales was President?—Cardinal Manning was there; I don't know about the Prince of Wales. But I gave very particular evidence on that subject which you will find there. It is hardly worth your while to go into it now, though some points of it may be interesting.

6127. I am quite sure it will be both interesting and useful. I think it important we should have it on our notes?—I may say the way in which it arose was this: When I came to the Huddersfield district I found the Board schools in a very good condition. I cannot say I found the voluntary schools in anything like as good a condition. I was obliged to report adversely on many of the voluntary schools. Then the clerical managers of some of the schools came to me and said: "Really you are taking too high a standard. Can you not let us off a little more easily?" "My instructions," I said, "are to examine voluntary schools in exactly the same way as Board schools." They asked what they should do, I said: "Take a leaf out of the book of the School Board and confederate, and agree on some joint action." I said, with all submission to your Grace, "Do not make your government entirely clerical but associate laymen with yourselves in the work. These laymen have been paying a great deal of money to support your schools and they have not got very good value for it. I should advise you to do what they have been doing in Manchester. Appoint an organizing inspector who would visit the schools and report on them, and call attention to the weak points in them for the government inspection." They did not quite see it that year. Next year they came to me again, when their schools were in a still more shaky condition, and I gave the same advice. They said: "would you mind meeting Canon Gregory to talk this matter over?" I said: "not at all." I met Canon Gregory, and he said: "you should have taken Mr. Graves' advice a year ago."

6128 He is a Church of England clergyman?—He is now Dean of Saint Paul's, a very leading denominationalist. And the result was that at the end of four years of this system, not only had no voluntary school gone over to the Board, as many of them were in great danger of doing, but, after paying the expenses of not only one but two organising masters, this set of schools was earning £1,000 more in Government grants than previously.

6129. So it largely promoted their efficiency?—Yes, and I think has largely led to the establishment of confederacies of the same sort elsewhere, and opened up the way to the Associated Schools Section of the Bill now before Parliament.

6130. Teachers' classes were established in that district: I suppose they were aided by this confederation?—Not absolutely. They were really classes attended chiefly by Board School pupil teachers and voluntary pupil teachers. One gentleman would teach them French, another would give them some higher mathematics. I took a class in English Literature myself. Our object was to improve the attainments of those pupil teachers, so as to make better teachers of them afterwards.

6131. But at this time there was no idea of introducing practical work?—No.

6132. Next you passed on to a rural district—to West Somerset—and there you established a system of conferences?—There, on the advice of Mr. Mundella, whom I had met at Huddersfield, and who was interested in my work there, I established a system of conferences—mere meetings, in the first instance—in order to improve the school attendance, which I found at a very low ebb—only 71 per cent. I did not think it was at all what it ought to be, and, by means of a series of conferences which I held with the managers and masters of Board and voluntary schools, we talked matters over, in consequence of which the compulsory powers of the Boards of Guardians were more emphatically exercised than they had been, and that the teachers and managers introduced indirect methods of improving the attendance—attendance prizes, and soforth—with the result that at the end of about a year the attendance sprung up quite 10 per cent. I know it put 2,000 children into the schools who had not been in the schools previously.

6133. Up to this point had the practical element been introduced into the teaching?—No, but the practical element was in the air.

6134. That is while you were in West Somerset?—Yes; it was coming.

6135. Teachers' classes were established in drawing, cookery, and woodwork?—Quite so. If I may take woodwork first, I may say woodwork was coming in through the Joint Committee and then the London School Board.

6136. You mean the Joint Committee here in London?—Yes.

6137. That Joint Committee has the credit, I believe, of having originated it?—It undoubtedly originated the idea. I told the teachers at conferences that I thought these things were coming, and that they ought to qualify themselves; and they accordingly formed a class in woodwork, which they attended, and went through a course of instruction with the object of qualifying themselves to teach woodwork in the classes. Then, about that time we were told drawing was to be made compulsory, or, at least, almost obligatory, and many of these country teachers had not their "D" certificates, and even some of them were not qualified at all.

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6138. The "D" certificate is from the Science and Art Department?—Yes, a teacher's certificate supposed to qualify for drawing. Some of them had a certificate for geometrical drawing and others for freehand drawing, but few had the full certificate.

6139. What steps were taken to secure their getting this necessary qualification?—Classes were formed, in the first instance at Taunton, at the School of Art, to which teachers came considerable distances. In some cases the managers paid the travelling expenses. In other cases the teachers paid them themselves. They came up and gradually qualified, not always taking all the subjects in one year, and in three or four years a large number of teachers qualified.

6140. When were those classes given?—They were held on Saturdays. Saturday is our free day.

6141. And the teachers willingly came?—They grumbled about it, some of them, at first, but my experience was that they enjoyed the classes.

6142. If they grumbled about it, how did it come that they nevertheless came to the instruction?—The feeling was that they knew their position as teachers would suffer, if being in charge of a school of a certain size they were unable to teach drawing.

6143. That the manager might, perhaps, send them away?—Well, not perhaps at first, but in course of time it would be necessary that they should know how to teach it. If they did not, their managers would be at additional expense in paying assistant or peripatetic teachers.

6144. Their training in it was effected by means of teaching at centres?—Yes; but if you will allow me to correct myself with regard to the grumbling of the teachers called on to qualify, I don't think this grumbling was of any considerable amount; it was only here and there.

6145. Now about cookery?—Well, cookery in the same way. I organised classes in cookery. Cookery of course had come in through the Joint Committee into the Code, and I thought it was very important, especially in rural districts where girls were wanted for service to a large extent, that they should be taught cookery. I urged the teachers to take that up and they did so. At Taunton one of the teachers of the National School of Cookery, who was stationed at Bristol, came up and taught the teachers. About fifty teachers were taught, and they went in at the end of the course for an examination for a certificate, which a large proportion of them got, and which enabled them to teach cookery in the schools on their own account. I may say that in many instances we found the people most likely to teach cookery were those who were not perhaps sufficiently literary to earn the certificate; such as a teacher's wife who had not had any special training or a farmer's daughter in the neighbourhood. And we were informed at that time that in special cases of this sort, the teachers who did not get a regular certificate might be passed as specially qualified on a visit from the Government inspectress of cookery. I accordingly communicated with her, and she came down and visited eight or nine schools in my district where there were teachers of this kind, and I am glad to say she passed all of them, and they were enabled to go on teaching cookery in those particular schools.

6146. What materials had she for forming her judgment?—Miss Mary Harrison was an experienced authority. She is married now, but Miss Mary Harrison as I knew her was our Departmental inspectress of cookery. She held certificates. I believe she had been in France and seen a great deal of cookery there, and she was able to form a very shrewd opinion upon not only the quality of the cookery, but the sort of cookery specially suitable for these country districts.

6147. Well, I wish to know what she did in order to enable her to form an opinion?—She came down and saw the girls actually cooking, either in the classroom, or, as often happened, in the teacher's house.

6148. Did she see the teachers teaching cookery?—She saw the lessons given by the teacher, and she saw the practical work done.

6149. And she gave this certificate without any formal examination?—Without any formal examination. I may say that I and my assistant adopted very much the same plan ourselves in the case of cookery. When she did not come down we watched the girls at work, got the teacher to question them, and even went so far as to get them to cook our luncheons for us, as the proof of the pudding is in the eating.

6150. When drawing was introduced, was this qualification by examination and certificate rigorously insisted upon?—Not very rigorously.

6151. Was there not a process gone through in the case of the drawing teachers somewhat similar to that which you have described in reference to the cookery?—Practically, except that in some schools drawing was let absolutely alone, and the inspectors allowed that, where the teacher was a man or woman of 50 or 60, with no likelihood of learning how to teach drawing.

6152. In what sense was it let alone?—It was not insisted on.

6153. In cases where drawing was introduced, were the teacher's qualifications tested by examination?—Yes; by the examination of the school.

6154. Kindergarten is the next subject. You, from the beginning, took an interest in the introduction of kindergarten?—Yes, a lively interest.

6155. It was becoming more generally introduced before you left the West Somerset district?—Yes.

6156. And it was taught on educational principles?—Yes.

6157. And it was of use for the general work of education in the schools?—Yes.

6158. In the teaching of arithmetic and other subjects?—Yes. Though I must say in the first instance it was rather hard to knock the notion into the heads of the teachers that the kindergarten work should influence the other teaching—that the work should be more co-related. In fact we gained experience which led up to our Departmental Circular on the subject.

6159. This brings us up to the point when the special education grant was made, known as the "Whiskey Grant": that was an important help to the introduction of practical teaching in England?—Yes.

6160. Was it so in the elementary schools as well as the technical schools of the higher grade?—Not directly in the day elementary schools, but it was in the night schools which were closely connected with its distribution.

6161. And also I suppose in the teachers' classes?—Quite so, in the case of the teachers' classes. The County Councils throughout England made special provision for classes for teachers. The classes I had started voluntarily were taken up by the Somerset County Council and carried on at more centres than it would have been possible for us.

6162. Then in that way it was indirectly of great help to the school work?—Of great help, for teachers in some remote districts were able to get instruction.

6163. Some laboratories were built throughout the district?—Chiefly in connection with secondary education.

6164. Were not these of use for teachers; some of the more advanced and enterprising teachers would get direct benefit from them?—No doubt.

6165. Professor FITZGERALD.—It also induced teachers who took up manual instruction to look forward for promotion into those higher schools—technical schools?—I hardly think so. I hardly think the time had come for that; to my mind that is rather a difficult question. I understand you have had information with regard to the London School Board and Joint Committee's woodwork teachers. These bodies began by having mechanics who were

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not perhaps as well qualified to take classes as assistant teachers. About that time they were starting the teachers' classes. Assistant teachers were put on the woodwork, and these assistant teachers, as far as I can gather, did not find that there was a sufficiently good outlook in the way of promotion, and the London Educational authorities have now rather harked back to the teaching by trained mechanics, perhaps more intellectual members of that class than they had before.

6166. CHAIRMAN.—Mr. Barter told us he himself was a mechanic?—I believe so; but he is a man of remarkable abilities.

6167. Professor FITZGERALD.—I understand that there is a prospect in view for other schools that teachers will take it up on account of the opening there is now in these Continuation Schools?—I should hope so. I may say in the country districts this kind of thing is likely to happen. Where you had a school of fifty or sixty taught by a mistress, now that the County Councils are coming in and helping the night school work, there is a better opportunity for masters to come in and be paid as day school masters and night school masters, the County Council paying them as night school masters as they do in Somerset. That of course would give greater opportunities in country districts for the teaching of this practical work, and I am inclined to think that some of the assistant masters would perhaps become specialists in technical instruction, whether instruction in woodwork or instruction of a commercial character, or possibly horticulture or agriculture.

6168. CHAIRMAN.—After the period you have described, you passed on to the London district, and you have had now four years' experience in London: during this period a system of practical instruction was in operation in the schools?—Yes, I found it largely in operation in my district.

6169. Is it in operation in the voluntary schools as well as in the Board schools?—It was only in operation in two voluntary schools, but I was very strongly in favour of its being introduced into the voluntary schools generally.

6170. I believe you brought up your idea of a federation or educational council into the Southwark district. Kindly tell us how you succeeded?—In Southwark it is on more advanced lines. It is even an advance on the system of the Liverpool Council of Education. The way in which it arose was this—I came up as a new inspector into the district, and the teachers asked me to meet them for a talk over my methods of examination and so forth, and certain points were put on the agenda paper. Amongst other things, we discussed the question of attendance. That took up one conference.

6171. In what respect?—How to improve the attendance in the schools for one thing.

6172. What year was this?—About four years ago.

6173. The Compulsory Act had been working for a great many years at that time?—It had been, but I may say my district is a peculiarly difficult one. There is a great deal of capricious migration of scholars from school to school, owing to the very abnormal character of the parents. There are a large number of costermongers and casual labourers, and it is in that way a very difficult district to get the children to attend regularly in. Of course my feeling was, that a good deal might be done in the voluntary schools in the way of attendance prizes, and generally supplementing the work of the compelling authority.

6174. Making the schools more attractive?—Yes.

6175. Who composed this council?—I should say after two or three of these conferences, which were found very fruitful, it was suggested that a standing committee should be formed, which would carry on the work we had done in the conferences. This council consisted of the government inspector and sub-inspectors (three), the Board inspector for the district, the members of the School Board who represented that district, four of them, the representatives of the secondary schools, because part of our programme concerned the connection between elementary and secondary schools.

6176. I believe that in England a number of scholarships have been founded by means of this "whiskey money"?—A very large number.

6177. So the special education of the more promising children is provided for by enabling them to pass on to a higher grade school?—Quite so, and not only that but there is an arrangement by which they can pass into a secondary school, and pass out of that into a higher institution, in some instances into a technical college. That was done, I know, in Somerset.

6178 Just as they pass from grammar schools into the Universities?—Yes.

6179. Has this education committee continued the work?—May I just a little complete the statement, because the constitution of the council is important. Besides having the officials, and the members of the Board, we have got Board and voluntary school managers, and besides Board inspectors we have got the diocesan inspectors, both the Church of England and the Catholic inspector, and we have got the superintendent of visitors—the man who has charge of the attendance officers of the district, and one or two other officials of the Board, and then we have the teachers largely represented—both the voluntary and the Board teachers.

6180 So that every section that has to do with educational work in the district is represented?—Not only that, but we have two representatives of the parents; that forms seventy-two, and there is a working executive of twelve.

6181. Some ladies take part in it?—Yes, there is an arrangement that, out of the twelve, four must be women.

6182. Then there are sub-committees in charge of the different branches?—Yes.

6183. Some very leading officials of the Education Board have taken part in your conferences?—Sir Joshua Fitch was our president last year. Our first president was Professor Stuart. Our present president is our senior chief inspector, Mr. Sharpe. He gave a presidential address last year.

6184. Do you find the teachers in England anxious to discuss educational subjects when they meet?—More so than before. I think since inspection came in, their minds are less on trades union lines perhaps. They appear to feel that greater elasticity is given to instruction, and they can experiment, and I think at their meetings you have discussions of an educational rather than of a trades union kind.

6185. Trying to get a certain amount of work cut off, salaries increased, and more favourable terms of pension—these are not the leading subjects?—I don't say that they are not, but other subjects are coming in more largely, and they are becoming genuine educationalists in the larger sense of the word.

6186. One of the effects of the new system has been to turn the teacher's attention more into educational lines?—Certainly.

6187. And to lead them to discuss educational topics at their meetings?—Certainly.

6188. I believe that the educational conferences discuss not only the subject of education, but the securing of recreation for the children?—Yes, there is an open space committee trying to secure playgrounds for the children, and the use of sections of a park for gardening or botanical purposes, or for organised games, to which reference was made in the examination of Mr. Du Port.

6189. And all such non-contentious subjects?—Yes, and the establishment of junior free libraries.

6190. To what extent are the various practical subjects developed in your school?—Kindergarten is taught in every important school in the district.

6192. Do you find all this practical work efficiently looked after and well taught?—Yes, I think it is

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very well looked after in the schools. I think it has a very great educative effect.

6193. You have experience of the schools both before and after its introduction, and you should be in a position to form an opinion whether the introduction of the practical work has improved or lowered the efficiency of the teaching in other departments?—My impression is it has improved it. In the first instance dull boys and girls who do not find their *métier* before seem to have found something that has attracted and interested them, and teachers tell me that those who are weak in other respects when they excel in one or other of these kindergarten employments, have opened up all along the line.

6194. They have got more self-respect, and are enabled to do better in the other work, even although a certain amount of time is necessarily taken from the other work?—Yes, but our hours are long, and I may say I think it is a very great thing to have such a recreative change.

6195. Professor FITZGERALD.—There was a complaint made that the children, though they were doing the manual work, were not able to describe what they had seen: is that a necessary consequence of the manual work?—I think it is due to the fact that the teachers now in the manual centres are not the assistant masters of the school. I think that there should be a greater connection between the centres and the schools. I think for example the boys should be given object lessons connected with the woodwork, and that they should be given composition upon themes which would be suggested by the woodwork in the school, in the same way as in the case of cooking and laundry classes, and I know that the teachers who take the greatest interest in the boys will visit the woodwork centres and see what is being done, and take an interest in it.

6196. Captain SHAW.—Are they not taught composition, and very many other subjects in the school?—I only say that incidentally. I say that the boys who are taught at the woodwork centre should have this woodwork related to the work in the school, and amongst other subjects composition. The composition upon woodwork might be given to them by the teacher of their own school.

6197. CHAIRMAN.—It is sometimes found difficult to provide suitable subjects for composition, to get topics for the boys to write about on which they have any ideas: your suggestion would get over that?—Yes.

6198. Professor FITZGERALD.—And prevent them spelling "Sickamore" (Sycamore) as if it was a sick tree?—Yes.

6199. Mr. STRUTHERS.—Boys may be trained to a particular form of composition, and then cannot apply it to another subject. They can produce a story in standard 5, and when they come to write about domestic economy they cannot do it?—No, I think we went on false lines in composition. We now begin in the very first standard to get children to write complete sentences, then we work up from that to do a little oral composition. They describe a picture in their own words. That leads on to their being able to take notes of the short lectures given them on a subject, and work that into a composition of their own.

6200. They should be taught to talk or write about every possible subject?—Yes.

6201. CHAIRMAN.—About things on which they have something to say?—Yes. I was going to say that another value of this kindergarten work is that it will keep boys and girls longer at school, because it is a subject they are interested in; and another thing I don't think has been touched upon, it will give them employment at home. I find that boys, even infants, will be cultured that way at home, doing work in which they are interested. Original designs will be taken up by the children at home, and woodwork will be worked for school exhibitions which are now being held, I am glad to say, in groups of schools.

6202. Is there not some danger that in preparing for these exhibitions they may lose sight of the educational purpose of the work, and look rather to results than to the methods by which results are produced?—I think not. One great thing is to interest the children, no doubt with an educative object in view.

6203. Mr. STRUTHERS.—Is there not danger of the teacher helping them too much with the objects that are made for the exhibition?—Not if they do it at home.

6204. Captain SHAW.—As a matter of fact, the exhibitions under the London School Board are of work which is made in the manual workshop, and during school hours?—Yes, but there are many schools which have private exhibitions of their own in which work is done by the boys in the way I say.

6205. You distinguish between private exhibitions at the school and exhibitions of the boys of several schools?—I do. One of our teachers of woodwork said he thought some of the poorer schools were discouraged from competing for the big show, and it might be a good thing to have branch shows in which the standard of excellency would not be quite so high. I don't say it should be necessarily taken up by the Science and Art Department, but a group of teachers might arrange to have a centre for their own schools.

6206. CHAIRMAN.—May we now come to the question of the suitability of Sloyd: from what you have seen of Irish boys, do you think that Sloyd work is especially suitable for them?—I may say that they don't take very kindly to the carpentry as far as I have seen.

6207. What do you understand by carpentry?—The woodwork. I only know of two experiments. One was at St. George's Roman Catholic School in Southwark, and I was told that there was not sufficient interest taken in it by the boys to justify the managers to pay a teacher as much as they were paying him. Then an experiment is going on now at the Borough Polytechnic, where they have got classes helped by the Joint Committee for voluntary schools, and there is a class from Melior-street, Father Buckley's school, going. It is a particularly well taught school, and I should say the boys ought to do well in woodwork if from an Irish school, but I spoke to Father Buckley the other day and he said they did not take very kindly to it.

6208. Is it called carpentry?—It is, but I don't think it is quite fair to call it carpentry.

6209. But you consider that Sloyd is specially suitable for these boys: when you say this, you mean Sloyd on the Swedish system?—I think so. I find that an Irish boy is quicker than an English boy, and he likes to see the result of his work rather more rapidly. He is not as patient. I am told that in the Irish schools in London they don't get as high results as they get in the Board schools, and the master of a very good school told me that it was due to their being in too great a hurry. They went at a thing in a dash, and were disinclined to pay attention to details. This was in reference to drawing, and, therefore, with a figure that had to be drawn very rapidly or a piece of freehand that had to be done against time, the Irish boy would probably beat the English boy, but if it was a case of careful elaboration and attention to detail the English boy would beat the Irish boy.

6210. Captain SHAW.—That is the defect that Sloyd is intended to cure?—You get your results more rapidly, you make something within a given time, a shape which may be both useful and beautiful, and the Irish boy's desire of having some result for his work is therefore rapidly gratified, and his art instinct is therefore more gratified than by the ordinary woodwork.

6211. CHAIRMAN.—And on the same principle you think that art work such as is carried on in the Alma-street school would be very appropriate?—An Irish boy likes to get his head pretty soon, and I think that the work shown at the Alma school, in the teaching of brush work, which begins with the elements and gives the scholar the opportunity of original design and original arrangement of colour, would appeal most distinctly to the Irish boy's artistic taste and to his propensity in favour of showing rapid results.

6212. Now, have you formed any general ideas as to the usefulness of teaching cookery or laundry work in girls' schools?—Yes, as my evidence about my Somerset experience goes to prove.

6213. And you think the results have borne out what you expected?—Yes; I think there is a tendency for girls to remain longer at school in order to learn cookery and laundry work.

6214. There is a good deal of talk at present about the development of the tourist industry in Ireland—don't you think it would be very important in that respect to have some attention paid to cookery and laundry work?—I think so. In some of the Somersetshire villages, places like Porlock, they took up cookery with that object in view, so that when people come to stay in the cottages the girls may be able to cook for them.

6215. That is, visitors not staying in hotels?—Staying, as they often do, in cottagers' lodgings; I found it so in the North of Ireland.

6216. And it would also apply to the case of hotels?—Largely to hotels.

6217. I had a deputation lately from the hotel and restaurant proprietors of Dublin asking me to try and get something done for the training of girls in this particular work: now you have practical experience of this school work for girls, that you have described to us, and you can assure us that it has worked successfully?—I find that it is coming to the homes, parents go to teachers of cookery and ask for recipes, and as far as laundry is concerned they send smaller articles to be washed in the class. Fathers and brothers like to have the finishing touch put to their collars by the girls in the laundry class, and it is establishing a most satisfactory connection between the school and the home.

6218. The washing of the family is not done in the school?—No, it cannot be done.

6219. Rev. Dr. EVANS.—Over how many years does your knowledge of manual instruction extend?—I have only had intimate experience of it for the last four or five years.

6220. Has your experience been continuous since you first came in contact with it?—Yes.

6221. And have you had evidence, as an inspector, of the utility of manual instruction?—Yes, in some respects I have. Take the case of the school I was at the other day, I noticed that some of the higher kindergarten work was being done by the girls, it was freehand drawing, coloured, and practical designing, and I found that pretty nearly three or four girls a year were taken into Doulton's work in consequence of this. My experience has been that it has generally brightened school teaching. Drawing certainly, to take one subject, has improved the writing and the map-drawing. Modelling has led to the application of the models to geographical teaching. In some schools cardboard work has led to making models for drawing, in other cases models for teaching mechanics have arisen out of woodwork instruction.

6222. Is the system of manual instruction susceptible of improvement?—That is a very difficult question for one who does not profess to be an expert to answer.

6223. Captain SHAW.—Is there a system to begin with?—Perhaps I had better be silent.

6224. Monsignor MOLLOY.—Everything is susceptible of improvement?—Everything is susceptible of improvement, and there is no doubt that manual instruction is improving. I think you, gentlemen, have seen how, for example, Mr. Ricks and Mr. Vaughan began by writing a book on kindergarten, and this book has originated a litter of other books on colour, paper, card board work, modelling, and brush drawing. Watching development, these teachers have gone on advancing on the study which they have taken up.

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6225. Rev. Dr. EVANS.—There are, no doubt, denominational schools under denominational managers in your district?—Yes.

6226. Do the denominational managers take cordially to manual instruction?—Quite cordially, but the difficulty has been the funds, for, of course, it means money: but under this new Act they will be able to take up these things very much more than hitherto.

6227. Is history taught in the Board schools and in the denominational schools?—Yes.

6228. Extensively?—They are obliged to read history in every school, and of course every intelligent teacher will convey some intelligent instruction out of the reading book.

6229. CHAIRMAN.—Using historical readers?—Using historical readers: history is not taught in as many schools as I should like, as a class subject.

6230. Rev. Dr. EVANS.—Is English literature taught extensively?—Literature you cannot say; recitation is taught, and four or five pieces of poetry are learned in the year, and something is told about the writer; but you cannot say literature is taught.

6231. Do you think that in every English school there ought to be some instruction in English language and literature?—There is instruction in the English language in every school, and I may say that there is indirect instruction in literature too. Many of the inspectors would urge upon the teachers that one of their Readers should partake more or less of a literary character, and the teacher, if he is worth his salt, would impress the literary side of education upon the children as far as possible.

6232. Is Euclid extensively taught?—It is only taught as a specific subject—not as a general subject of instruction.

6233. CHAIRMAN.—Of course it is not obligatory?—No.

6234. Rev. Dr. EVANS.—Nor is algebra?—No; but it is taught in some schools.

6235. Are you of the opinion that algebra is as extensively taught as it ought to be?—I don't think there is time for it in the case of a large proportion of these schools.

6236. Is book-keeping taught?—In some schools, and I must say I should like to see book-keeping taught more than it is in the upper standards of the schools, and I think it might be more taught if Scheme B of arithmetic, which is a quicker way of teaching it, were made universal.

6237. It is our good fortune that you know Ireland. Euclid, algebra, book-keeping—those things are very extensively taught in Ireland. If any system of manual instruction or of hand and eye training were to displace these in Irish schools or to displace them to some extent, would you think it profitable to the country?—I question what very great good Euclid or algebra has been to them.

6238. Professor FITZGERALD.—Does not manual instruction give them instruction in applied geometry?—I should say so: a great deal of geometry might be taught through this cardboard work, and in a practical way.

6239. Rev. Dr. EVANS.—I wonder whether you heard what was said by a previous witness on the subject of grammar and analysis of sentences?—I think I was present at that time.

6240. Is that vanishing away from the English schools?—The straight waistcoat of Latin grammar which was imposed on the English language, I am glad to say, is vanishing.

6241. CHAIRMAN.—And the straight waistcoat of German grammar?—Yes.

6242. Rev. Dr. EVANS.—I hardly know how to interpret that?—Dr. Morel and others tried to put English into the straight waistcoat of Latin grammar.

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6243. Do you know Mason's Grammar?—Yes; and I don't think you could have a better one

6244. Do you apply the same term to that?—No; I think he treats it much more historically. Our language is a composition of dialects, and a great deal of what is called bad grammar is good grammar in a particular dialect. In parts of the country like Somerset, where lads talk their dialect they should not be snubbed for it, but told it was a form of language which was in vogue at one time, and was a correct language. I think you should compare it with the classical English, and you should not snub a good deal of so-called wrong grammar which is simply dialect.

6245. You know we have a Primary system, an Intermediate system, and a University system in Ireland, very happily graduated, so that a boy or girl may rise from the primary schools up to the Universities, and be aided all along the line. Would you think it well to drop English subjects?—Certainly not; but I think they could be taught on fresher or more suitable lines, such as was suggested by the gentleman who was examined here on this very question.

6246. Chairman.—Of course we are not going closely into this, but I take it that Dr. Evans wishes to know which you prefer—this highly scientific teaching of English, or a system of manual instruction?—I should rather have manual instruction, and the fresher style of teaching English we are introducing into our schools.

6247. Rev. Dr. Evans.—You believe that a large number of pupils in the country would receive more benefit from the introduction of manual instruction than by spending so much time over those other subjects?—Yes.

6248. Mr. Struthers.—Are the historical readers obligatory?—Yes; you have to take them from the third standard up

6249. In that case the pupils are not examined in history; there are no questions about it?—No; but they would read out of the history reader to the Inspector.

6250. Would the Inspector ask them any questions on it?—I don't think he is entitled to ask them questions on the general history, but he asks questions arising out of the text.

6251. You have no means of forming an opinion as to how far the reading of the history book leads to any solid knowledge of history?—No; I have urged teachers to make a digest of the history book, and to use that digest in the examination of the scholars, but we are not supposed to examine them.

6252. You would not approve of the children making digests themselves?—I think it would be an extremely good thing in the sixth and seventh standards for them to do so.

6253. About literature—I suppose English literature is not a subject that can very well be taught to children of ten or eleven?—I don't think so.

6254. And so far as children can get any introduction to literature they have it in the form of recitations which the inspector may check?—Yes; and see too that they are by standard writers.

6255. By the fresher style of teaching English grammar, you mean the teaching of it so as to make it bear upon composition?—Bear upon composition.

6256. Don't you think that manual instruction has had some effect in giving a concrete meaning to the teaching of arithmetic; it enables them to understand decimals better?—Yes. There is a concrete arithemetic book which I think the Midland Educational Supply Association introduced from Germany. Arithmetic is taught in the infant schools by means of bricks. We have a "one" brick, a "two" brick, up to a "ten" brick. The "ten" brick can be divided off so as to show addition and subtraction. Thus you can place a "six" brick on a "four" brick and show that they are then of the same height as a "ten" brick, proving in concrete form that six and four make ten Then you can take away the "six" brick, leaving the "four" brick, thereby showing that four is the difference between ten and six; and then you get multiplication by sets of bricks of equal numbers, and you can get division by the reverse process.

6257. As a matter of fact, arithmetic is taught in the kindergarten schools very much upon these lines?—Yes.

6258. You would naturally expect this measurement of surfaces and lines in exact positions to have some effect on the teaching of arithmetic in the higher standards?—Yes, I have always encouraged the concrete teaching of arithmetic by means of weights and measures, and I have had very remarkable results in some of the schools in that way I think, as far as cookery is concerned, it is very important that weights and measures should be taught in the schools so that when girls go into the cookery class they would be deft in the use of weights and measures I went so far in one of my schools, that if you walked into the schoolroom they would be able to tell your height, and if you put a weight into the hands of the boys' class and got them to pass it around, and got them to write the weight on the slates and turn the slates over, you would find the average of the results was the correct weight. The teachers themselves could not do it, but the boys' delicacy of touch enabled them to do it. They began by common brown soap, which is easily divisible, and the weight of which is little affected by temperature, and that being the standard they got at other weights They began by weighing with scales and then guessed weights by the hand, and finally by the eye, with satisfactory results, and the same with the measurement of distances.

6259. But can you say whether the teaching of woodwork, and so on, has had any recognisable effect on the intelligent understanding of arithmetic?—I can say I have found it.

6260. You found a general improvement in the work of the school in recent years?—Certainly.

6261. That has been concurrent with the introduction of manual work?—It has been largely influenced by the introduction of the inspection system as against the examination system.

6262. In fact the general improvement may be due to several causes?—Yes.

6263. One of which is the changed system of inspection?—Yes.

6264. Another, the introduction of manual work?—Yes; and the improvement of attendance, and the getting to school of younger children. Under free education you have younger children to deal with, whom you can work up to the system.

6265. A child now no longer needs to pass a standard at a certain age?—Yes, I am sure that that has a great deal to say to it.

6266. What practical use is the council that you have established in Southwark put to? In what way does it affect the schools?—We have papers read quarterly and discussions on subjects that engage general interest. The teachers hear these papers read, and the question is discussed, and the teachers go back to the schools and impress the results of the conference upon their assistant teachers and their schools.

6267. The effect of the conference is to enlighten teachers in school methods?—Yes, and managers too, and helps outside school movements. The question of improving playground space for children for instance, the question of school libraries, and so forth.

6268. It is a means of bringing enlightened opinion to bear on the public in reference to school questions?—Yes.

6269. You spoke of children passing from primary schools to secondary schools. Is there any difficulty in getting these children to fit in with the curriculum of the secondary school. They may be very far advanced in primary subjects but have made no beginning in the subjects taught in those schools, such as

French?—My experience on that point is not very wide. It commenced by my being connected with the Somerset County Council, and I found that after a while the boys did fit in, having been well grounded at the primary schools; they picked up their subjects very rapidly

6270. Captain Shaw.—In standard seven or ex-standard seven what mathematics are taught in ordinary schools?—A certain amount of mensuration in some schools, and the algebra you find in "Specific Subjects."

6271. Are not many of these children presented for the Science and Art Certificate?—Yes. I think it is a great pity that two Departments should deal with practically the same subject.

6272. Apart from that, are not those children taught these subjects in seven and ex-seven standards?—Yes.

6273. Rev. Dr. Evans.—About what proportion are taught—one in ten?—Nothing like that.

6274. Captain Shaw.—You said the reason for not teaching these subjects in denominational schools is want of funds. Wherever these subjects are taught in Board schools, one teacher is used for several schools; therefore, may not want of organization amongst the voluntary schools be another reason?—I think so, and I have suggested to voluntary school managers that they should combine and avail themselves of the advantages offered by the Joint Committee and they have done so at the Polytechnic, and therefore there are classes for woodwork, laundry work, and cookery there.

6275. Rev. Dr. Evans.—You mentioned that want of application was a characteristic of the Irish race, and therefore you said that you would not give them manual instruction which requires application. Is not the duty of education to correct the faults in character?—My impression of Sloyd was that it was educational, that it required work, but that it was more especially adapted to the Irish mind. You see your results more rapidly and it appealed more to the art instincts than the woodwork does. I am particularly anxious that this national blemish in the Irish boys and girls should be if possible wiped out or largely mitigated.

6276. What way is there to mitigate it unless it is by giving them in early life subjects which require application?—I am in favour of subjects that require application. I should say, teach them drawing, and teach them these various manual subjects. But I think it is wiser if you are introducing a new subject into a country to give something that will not only require application but would also to a certain extent favour the National characteristics. I should give Irish lads and girls a character for quick intelligence; I should not say that they are wanting in industry but they are wanting in the plodding, patient application you see in the English children. With regard to Irishmen and Irishwomen carrying off appointments in this country I think that they seem to me to excel particularly in competitive examination. They make the very best use of the knowledge they have got. They will probably do more with less information than the Englishman will—in examinations particularly, where it is a question of composition or perhaps oral examination. In some instances they will succeed in disguising their ignorance in a way that an Englishman will not.

6277. Mr. Molloy.—Do you take part, Mr. Graves, in the examination of any of the training colleges?—Only in hearing the teachers of the training colleges read, recite, and give lessons.

6278. Are you aware whether kindergarten is taught in the training colleges, and if so, is it taught to men as well as women?—I understand that it is very well taught in some of the training colleges, particularly the colleges where infant teaching is made a speciality; and I believe that at the Westminster Training College it is taught even to the men, and with very good results.

6279. Manual instruction is not carried out in many of the training colleges?—I am afraid it is not; and I believe the reason of it is that the teachers cannot earn marks at their Queen's Scholarship and certificate examinations for it. If it were a question of marks I believe the training colleges would take it up and some arrangements would be made for dove-tailing this practical instruction into the other instruction. If for example, history and geography were combined as one subject, then perhaps there would be more space for teaching practical subjects. If French was cut out—and I may say from what I have seen of the French papers done by girls and young men, I should be very glad to see it struck out—and if you were to substitute for that or had an alternative to take up a practical subject it would be an extremely good thing.

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6280. Mr. Struthers.—Do you know that French pronunciation is not taught in many of the colleges?—That was my belief. Certainly, marks for pronunciation are not given at the Government Examinations for Teachers.

6281. Mr. Molloy.—From your knowledge of Ireland would you advocate the introduction of manual training in Irish colleges?—If the teachers are to teach and spread the light in the schools, I should suggest their being taught subjects more specially suited to Irish needs.

6282. And if that should be found to be a slow process would you in conjunction with that advocate the propriety of having experts to go round the various centres?—Certainly. Under the London School Board something of that sort is done: they have got science teachers to lead the way and give experimental lessons, and then these are taken up by the assistant masters.

6283. Would you allow these experts to give certificates to the teachers who had been, say, in training colleges, but who had left for years before any such subjects as drawing and manual instruction and kindergarten were introduced?—I should say that that would be a very good plan, but you must not multiply certificates, and if you empower a dozen people to give certificates, there may be a risk of a variety of standards.

6284. Speaking of composition awhile ago you advocated the propriety, where there were central schools, of a closer relation between the central schools and the ordinary school from which the pupil would come so that he could pass on subjects taught at the central school. Would you be in favour of having a separate manual instruction room for each school. We met with an example of that yesterday at Hornsey?—I think the ideal plan would be to have it at each school, but then the question is whether you will get sufficiently good teaching. It would be better to have it immediately in connection with the school.

6285. Coming to the point of inspection, have you any personal experience of the examination of pupils individually for results fees?—Oh, yes. I remember the time when we had to examine every child in every subject.

6286. That was varied by the form of inspection with class examination, and that in turn by sample inspection, and then by mere inspection?—Yes; the examinations going on side by side; but I may say I am strongly of opinion that schools that are examined, are the schools that want inspection most, and I really give more time to inspecting these schools than I do to the other schools I inspect. I or my assistants visit them two or three times in the year and advise on the weak points.

6287. I presume I may take it that you are distinctly in favour of the inspection that prevails at the present time?—Strongly in favour of it.

6288. In the circumstances of Ireland the inspector can sometimes only visit a school once in the year. Would you be content then with mere inspection?—I think you ought to see a school in the way of inspection more than once a year.

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6289. Chairman.—Under a system of inspection without an individual examination such as we still have in Ireland, an inspector would have more time to visit the schools?—I should imagine he would.

6290. Mr. Molloy.—And in the event of his being able to visit the school only once, would you advise an examination of some of the classes rather than an inspection?—That would be a very hard question to answer. You might combine the systems. The inspector would spend the double session there.

6291. We have only one session. (*Witness*).—Could you not in that case combine? Could you not watch the methods of inspection for half the time and examine during the rest of the time. I should very much rather see it arranged that deputies even might be appointed to inspect the school—deputy inspectors.

6292. Chairman.—In Ireland, we have a number of assistant inspectors who are mostly, I think, if not exclusively, ex-teachers, but in our system the assistant inspectors are not at all so numerous as they are with you in England?—If it were possible to detail them for work of that sort, so as to make up two inspections in the year, I would rather have that.

6293. Mr. Molloy.—I suppose there is no instance here in England where inspection takes place only once—that the morning or evening session alone is reported on?—Practically not. Certainly it does not happen in my district.

6294. When does Her Majesty's Inspector fix the arrangement of the time table?—As a rule when he visits the schools; but there is a variety of procedure. If an inspector visits a school without notice he will see the time table, and if the teacher has any alteration to make, the alteration can be made then. I have a fixed day once a month when I invite the teachers to meet me at a suitable centre, show me their time tables and confer with me about them, and on school matters in general.

6295. We had at one time an arrangement, though not an official one, by which on Saturdays the inspector had an opportunity of conferring with the teachers?—I did that largely on Saturdays, when at Taunton. I let it be known that I was open to visits from teachers on Saturday mornings.

6296. Monsignor Molloy.—I wish to ask you if you are in favour of teaching the principles of elementary science in the primary schools?—I am certainly in favour of it. It is done largely under the London School Board, and I think with satisfactory results.

6297. Are you acquainted with the methods which have been introduced by Mr. Gordon in some of the Board schools on the north side?—No, I cannot say that I am.

6298. Mr. Heller has succeeded him?—I don't know his method.

6299. In that method the practice is to get the children to make the experiments for themselves, and as it were to discover for themselves the principles of science which are involved in the experiments; and it has been found to work very well?—How early in the school do they begin that?

6300. Generally at the fourth standard; but in adopting that system I gather that you would think it would be advisable to give them practice in composition by requiring them to describe the experiments which they make?—Yes, I may say that that plan begins in some of our schools even in the infant department. You will have a tadpole, and the class watch it turning into a frog, and the children are asked to describe what they see. They write it down with a lead pencil in a little diary; and in the same way with the growth of plants.

6301. By that means the power of expression is cultivated at the same time that they acquire scientific knowledge?—Quite so.

6302. And the same principle might be applied to woodwork?—Certainly, but I don't think your woodwork teachers would care for that quite. I don't think it can be well done when they are doing their woodwork, particularly with the present difficulties. You get a group of boys, perhaps some in fifth and some in sixth standard; it is very hard to give the individual attention necessary to the practical work of those boys. In their ordinary school work questions might be set for composition which would involve the description of the process they had gone through in learning the woodwork.

6303. Chairman.—And they might be called upon to describe orally what they had seen?—Yes, or they might be asked to write an account of what they had done.

6304. Captain Shaw.—Are they not taught to describe in the most graphic way possible the woodwork by making a drawing of it?—That is true. I think the difficulty has arisen out of the report of the Joint Committee, in which they found fault with the composition of the boys and their spelling.

Mr. Struthers.—At Hornsey we found it is part of the course of instruction that the boys should describe in detail the models they made.

6305. Mr. Redington.—Have you had any opportunity of ascertaining the feelings of parents towards this system of manual work which their children have to take up?—I understand that the parents enjoy it: the advanced kindergarten work is often used to ornament the chimneypieces in the homes. They quite fall in with the boys and girls going on with the work at home, which, I think, shows that they favour it; and they allow their children, sometimes at considerable cost, to remain at school longer, in order to benefit by this particular work.

6306. Have you ever heard parents criticise the cardboard work as producing useless articles?—No, I have not. Of course I don't get many opportunities myself of speaking to parents, but I have heard through the teachers that they favour kindergarten work, and the practical work—the wood work and the manual work of various kinds; and in the case of a group of schools in Somerset, where weights and measures were practically taught, the parents entered into it, and said, "Well, there is some use in this."

6307. If the result of the cardboard work were to make a thing that was of no use, would the Somerset parents approve of it so much?—I don't think so; but my impression was, from the exhibits I have seen, that the cardboard work can be applied very usefully in many directions.

Mr. Redington.—Some of the objects were obviously of no use. A copy of a scissors in cardboard would be of no use.

6308. Chairman.—But the making of it might have an educational effect?—I think many parents would like to have a thing made by their children.

6309. Mr. Redington.—Such as a cube, for instance?—I was at a school the other day, and asked the teacher, "How does this cardboard work come out usefully afterwards." The reply was that she knew paper folding, which was part and parcel of it, had been found distinctly useful in some businesses to which her girls went afterwards—envelope folding, and envelope making, and cardboard box making—but that, of course, would be only in individual cases.

6310. Chairman.—In making patterns for dresses the paper folding would come in?—Yes, and designing.

6311. And then accuracy in folding the paper, so that the edges correspond exactly—is not that useful?—It is very useful.

6312. You spoke of the teaching of drawing as having improved map drawing. Have you map drawing on the blackboard?—Yes, by the teachers, to a large extent.

6313. In the teaching of geography in your schools, how do they begin?—They begin with a plan of the school and of the neighbourhood, but I think they waste a good deal of time at the training colleges and pupil teachers' centres on memory map drawing.

6314. In reference to composition—the style of composition that you think should be cultivated in elementary schools is not the writing of high-flown essays?—Certainly not.

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6315. But rather expressing their ideas clearly and in fairly good English, English as good as possible in point of diction and structure?—Yes, and I am in favour of the teaching of compositions leading up very freely to letter-writing.

6316. In reference to a question Mr. Molloy asked, it occurs to me to ask you this. There is a certain additional amount of time gained for an inspector by the substitution of the present system for the former one?—I suppose you may say that in some districts, but there is not in others.

6317. I think you are comparing your present system of inspection without examination, with your previous system, which was a system of examination by sample. But if you compare it with a system such as we have in Ireland,—a system based upon the examination of the individual pupils,—would there not be an enormous gain of time?—An enormous gain of time.

6318. You are aware that the system I now describe is in force in Ireland?—Yes.

6319. So you think that the substitution of the present English system for the Irish system would leave an enormous amount of extra time in the hands of inspectors for the work of inspection proper?—Yes.

6320. And would enable them to visit remote schools more frequently?—Yes.

Mrs. Homan, Member of the School Board for London, examined.

Mrs. Homan

6321. Chairman.—You are a member of the London School Board?—Yes.

6322. And you are also a member of a very important Committee of that Board—the Committee on School Management?—I am not a member of the School Management Committee: I am Chairman of the Sub-Committee on Domestic Subjects.

6324. What are the particular subjects dealt with?—Cookery, laundry work and needlework, and now we are commencing housewifery.

6325. Which of these branches was first taken on in the London School Board?—Cookery.

6326. It commenced, I believe, with an experiment by that "Joint Committee," which has done such useful pioneer work in London?—Yes.

6327. And soon afterwards, the subject was recognised by the Education Department and consequently by the School Board?—Yes.

6328. After the cookery came?—The laundry.

6329. What about needlework?—That was always in the schools.

6330. Monsignor Molloy.—And lately housewifery?—And lately housewifery.

6331. Chairman.—There are a large number of centres for laundry work and also for cookery?—Yes; 160 cookery centres we have at the present time, and we have 95 laundry centres.

6332. And of late years they have been growing rapidly?—They have been growing rapidly.

6333. Then you have a very complete staff for each of these—superintending instructresses?—And probationary instructresses.

6334. What grants are given by the Education Department?—Four shillings each girl for cookery, and two shillings for laundry.

6335. How many classes must a girl attend during the year?—She must make twenty hours of practical work in the cookery.

6336. That implies forty hours of work in the centre?—More than that; it means twenty-two half days.

6337. I believe that half of the time is occupied by a demonstration from the teacher?—Yes, and the other half by practical work.

6338. That is so, both for cooking and laundry?—Yes. The number of hours in the laundry work has not, until this year, been stipulated in the Code at all. It has just now been introduced when this new Code came out.

6339. Arrangements are becoming more definite as the work is better established?—Yes.

6340. There are two courses of cookery work in each year in each centre?—There may be.

6341. And four courses of laundry work. Do the same children attend both courses?—In some of the cases they do, not in all; it is open to them.

6342. Why is the grant of four shillings given in the case of cookery, and only two shillings in the case of laundry work?—It is twice the number of hours—cookery lessons are twenty-two, and laundry lessons only eleven.

6343. Is it supposed that laundry work can be learned more quickly than cookery?—It is supposed so. In many cases we introduce a second course of laundry, which would make it equal to the number of cookery hours

6344. Mr. Redington.—A lesson is two hours?—Two and a half, or three, hours in the morning.

6345. Chairman. — I see that the roll is not formally closed for half an hour after the beginning of school attendance?—Yes.

6346. Children are allowed to come in at any time during the attendance, but their attendance will not count?—Not at any time, but only during a certain time laid down in the rules.

6347. You have a system of black marks and red marks?—Yes, the same as in the ordinary day school.

6348. A red mark is given to a child who is in when the school opens?—Yes.

6349. Are there not prizes given for regularity of attendance, and medals in the case of specially good attendance?—Yes.

6350. What is your general view of the result of the introduction of these special subjects for girls?—I think it has been a very good thing for the girls. They begin at fourth standard; but there is a rule in the regulations laid down by the Board, by which children who happen to be over eleven years of age, and below standard four, may still attend. That was instituted in some of the very poor districts where the children attend very badly, they perhaps leave before they reach standard four, and it includes those children.

6351. Is there not a gap, as regards the girls teaching, between the kindergarten in the infant department and the practical instruction that comes in in the third or fourth standard?—Yes.

6352. Is there anything in the way of practical education to fill up that gap?—I don't think there is.

6353. We had some illustration of the work done in the boys' school—the paper folding?—That is so now, in the second and third standards in the ordinary day schools.

6354. Captain Shaw.—Is it not taught to girls?—It is, and boys too.

6355. Chairman. It is recognised as a "suitable occupation," and consequently can be taken as a class subject?—Yes.

6356. What has been the effect of the introduction of these subjects on the regularity of attendance in the schools?—I don't know that it has affected the general regularity of the attendance at the ordinary day schools. I think that in some instances where the girls have reached the upper standards, it has been useful in encouraging them to stay on a little longer in school than they used to.

6357. I have been very much struck by some figures as to cookery. There were 21,000 children on the roll, and of these 18,400 were in actual attendance. That is a very large proportion?—Yes, above the ordinary attendance in the school.

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6358. It represents 88 per cent.: that is the case in cookery. The result is still more satisfactory for laundry work: there are 5,000 children on the roll and 4,750 in actual attendance; that is 95 per cent. That is far and away beyond anything you can get in the ordinary schools?—It is.

6359. So that this branch of work is attractive to the children?—It is, very much so.

6360. What do the parents think of it?—As a rule the parents make no objection. When the subject was first started we had objections to the cookery. They said they could teach them at home, and knew quite as much as anybody else.

6361. Do you find that they have been taught at home before you take them in hands?—No, we don't.

6362. Do you aim at teaching them to work, whether in the cookery or laundry department, with the same class of appliances that they will have in their own homes?—We do, as far as we possibly can. There must be some slight additions on account of the number we have to teach, and we are obliged to provide more fire apparatus.

6363. But you consider that as far as possible the children ought to be taught to work with appliances such as they will have to deal with in their own homes?—As far as possible.

6364. Of course, in the laundry work, you do not enter into competition with any trade laundry?—No; we use no machinery.

6365. And you don't undertake to do family washing?—Not at all.

6366. The educational aspect of the work is specially attended to?—The educational side of it is improving every year, as we get better qualified teachers.

6367. There is another department, housewifery, which is now only being introduced—kindly explain to us in what that consists?—We have, wherever we possibly can, four small rooms, consisting of a kitchen, a small sitting room, a small bedroom, and a scullery, so as to represent, as far as possible, a workman's small dwelling, and the girls are taught to do the whole of the work of the house in proper order, and with proper method: that is to say, they are taught to do the whole week's work, and map it out in a methodical, proper manner; they are also taught a good deal of the theory upon which it is based, and they have theoretical lessons given in the class, with desks upon which they take notes, and have examinations on the blackboard, and diagrams, and so on, and have notes of lessons, as well as doing practical work.

6368. And they are taught elementary nursing?—They will be, in one portion of it.

6369. I am particularly interested in this, because we have in a convent school at Bray, near Dublin, this very thing in actual operation, and it is said to work very successfully; the nuns there have built a cottage for the purpose. But it has always struck me that there is one very important branch of domestic work that cannot be carried out in such an institution—how do you give practical instruction in how to keep a place clean; model establishments are always clean, they seem to keep themselves clean?—Living in London, we don't have much difficulty of that sort; places get dirty of themselves, I think the house would get sufficiently dirty with the ordinary traffic of a class.

6370. I observed in one of your cookery centres a kitchenmaid employed for the purpose of cleaning and tidying up the place?—Yes.

6371. Do you not think it would be better to have that done by the children?—The kitchenmaid does some of the rougher washing, that the children have not time for while they are being taught, and the filling of coal-scuttles.

6372. Work that might perhaps be beyond the strength of the children?—Yes, and besides it would take up too much of the time of the children; and in some centres, where dinners are cooked for the teachers, we don't want them to spend too much time at it.

6373. The Report shows that your London School Board made a small profit in the cookery department, £500, last year: but you don't aim at making a profit, it comes in spite of you?—It comes in spite of us; that profit goes to reduce the maintenance amount. When you buy in large portions and afterwards sell in small quantities, you make the profit on the fractions.

6374. Monsignor MOLLOY.—The school we visited this morning is a centre school for teaching domestic economy and housewifery?—It is a special centre which has been set apart for the new scheme which the Board is now trying, that is, the amalgamating of the scientific part of domestic economy with the practical part.

6375. Would you explain exactly what you mean by the scientific part and the practical part?—The theoretical part has been taught in the ordinary day schools, and this scheme is to take it out of the day schools and combine it with the practical part which has been taught in centres.

6376. How are you satisfied with the results of that system?—I was a strong advocate of it, and I believe it will be most useful and will give the girls a more consecutive course; if they commence in standard 5, they will get three years of it.

6377. And they understand the theoretical part much better when they have the practical part in the same place and at the same time?—We hope so.

6378. This school is one that teaches only this particular subject?—Yes.

6379. And children come to it from the surrounding schools?—Yes.

6380. Do you admit pupils from the voluntary schools?—We should if we have room for them; we had them in other centres.

6381. But you find this school is sufficiently filled with pupils from Board schools?—At times this particular one is; but there will be times when it won't be filled, and we shall be glad to take pupils from surrounding schools.

6382. Have you any difficulty in finding teachers for these centre schools?—We have when we require them to have special qualifications, such as we do require for this subject; we require them to have advanced hygiene and chemistry, and a diploma for cookery, and they must be able to teach.

6383. Is there any system by which they can be trained for this work?—The Polytechnics are beginning to take up this work, the Joint Committee is going on with it, and will be training teachers; beyond that I don't know of any school where they train them.

6384. How did you get your present teachers?—They were trained practically by our own superintendent.

6385. Mr. MOLLOY.—Is there any other instance of a school, such as we saw this morning, under the London School Board?—Not under the London School Board; there are two more being arranged for.

6386. I take it this is the only school for housewifery in London under the Board?—Yes.

6387. Approximately would you be able to give us any idea of the cost of the housewifery department alone?—I am afraid I cannot tell you, as distinct from the others; it has not been sufficiently worked out; the cost of the furnishing I can tell you, that is limited to £40.

6388. For the four rooms you speak of?—Yes.

6389. You have already answered that the teachers were trained under Mrs. Lord?—Yes.

6390. Had all of these been in the training colleges previously?—No, they were not trained teachers, but most of them had been cookery or laundry teachers; one had been only doing secondary teaching and had been trained at Bedford College.

6391. I noticed that very careful exercises were written by the pupils in each subject, for the cookery, and particularly for the laundry, I want to know do the teachers of the schools of these pupils ever see

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these exercises or are the exercises only exhibited to the special teacher of the central school?—The teacher of the ordinary school would see them if they visited the centre, but I don't know that they have done so yet.

6392. Do the teachers of the ordinary schools visit your centre with their own pupils?—Not very often.

6393. Would it not be desirable to bring about a closer relationship between the two?—I think it would be desirable that the teachers of the ordinary schools should visit the centres; of course the difficulty is time, they are occupied at their own schools and it is difficult to get away.

6394. Captain Shaw.—As regards laundry work the children go for one hour a week?—They go for 11 lessons, one lesson a week for 11 weeks.

6395. Do you think that is the best system?—No, I would rather they went one half day a week during the year, as they will under the new scheme.

6396. Would you prefer that to their going for a week at a time and spending the whole week there?—I don't think that would be a good plan; they would forget what they learned.

6397. They could commence with the scrubbing and washing, and say, the drying, and then go on to the ironing and work out the whole laundry work with one particular article?—Yes.

6398. They do generally see that because the lessons are consecutive, and there are classes following one after another, so that things begun by one class are finished by the next class?—Yes.

6399. If children are allowed to bring things for themselves to wash, how is that worked on the scheme when they only go once a week?—They do finish them in the time, those small things that they bring in that way can be finished in one attendance.

6400. You have special drying arrangements?—Small things of that kind very quickly dry round the stove.

6401. The other system is followed in Barrow, and the regulations of the Department allow ten hours to be spent in one week. Then as regards housewifery are they taught marketing and the keeping of accounts?—In the housewifery they are.

6402. How far is it practical?—We work it out this way: there are a number of lessons worked out, the number of dinners and the price, is worked out by the teacher. Two children take one dinner and go out and buy things themselves, they bring home the change and make up the account and cook the dinner.

6403. Therefore they get a knowledge of the proper amount to spend on a small household during the week?—Yes.

6404. They have gained the practical knowledge by buying things themselves?—Yes.

6405. Does that apply to other articles used in the house, for example, soap, &c.?—We hope to be able to do that; it will depend upon whether the Board will allow us, because it would be more expensive than buying it wholesale.

6406. Are you acquainted with the schools in Belgium?—No, I have not see them, I have heard of them.

6407. There they combine in one centre cookery, laundry, and housewifery?—Yes.

6408. Mr. Strutherrs.—That is the case with you?—They are all on the same premises but not in the same room.

6409. The girls know exactly what the cost of the dinner is that they cook each day?—In the housewifery.

6410. I think you have some sitting-rooms fitted up with a bed?—Yes.

6411. So as to illustrate the condition of life you find in certain localities?—Yes, but that is not under the Board; it is under the Joint Committee.

6412. I suppose the method of cleaning would be the same whether there was little or much dust?—Yes.

6413. About the teaching of domestic economy in schools, altogether apart from cookery and laundry work, have you seen something of that?—Yes, from time to time in the school.

6414. Do you think it is very desirable?—I think it has a certain value, and until we had the practical work, it was the nearest approach to teaching domestic economy.

6415. You think its value is greatly increased when carried on alongside practical work?—Certainly.

6416. Rev. Dr. Evans.—Do you find the young people who learn these subjects really carry them on at home?—I think they do to a certain extent; we have had very gratifying letters from parents, in which they have stated that they have been ill, and the little girls after these classes have been able to do the work very easily.

6417. Do the men take kindly to it?—I believe they do; in my own division—a working population, Tower Hamlets—most of the parents I have to deal with are of the working class, and they have told me that they have found very great benefits from it, the children have learned to be able to do most of the cooking of the house.

6418. Rev. Dr. Wilson.—Has this school we visited to-day, in Bethnal Green, been long in operation?—A very short time, only this year.

6419. So far as you have experience, do the children like the various departments?—Very much, indeed.

6420. They like cooking their own dinner?—Very much.

6421. Chairman.—In these interesting papers, the regulations of the School Board, I see that in each case there is a paragraph about the salaries of the teachers, and a provision for a superannuation allowance; that, I believe, runs through the whole system of the London School Board?—It does.

6422. For this superannuation fund a deduction is made from the salary of the teacher?—Yes.

6423. The salary ranges from £60 to £75 a year, and about one-fiftieth of that is kept back?—Yes.

6424. What do they get in return?—It is difficult for me to explain; the superannuation scheme is not at present in the state it ought to be, and nobody knows at present what it will be.

6424a. I trust your case may not be as bad as ours in Ireland, where the actuaries tell us that our Teachers' Pension Fund is practically in a bankrupt condition?—It is to be hoped we are not.

Mrs. Lord, Organizing Superintendent of Laundry work, &c., under the School Board for London, examined.

Mrs. Lord.

6425. Chairman.—I believe you hold an important position in connection with the laundry work and cookery departments of the London School Board?—I am the organizing superintendent of laundry work, housewifery, and domestic economy.

6426. Have you acted in that capacity from the establishment of this department of the school work of the Board?—Yes; I think I formulated the first class in England in which laundry work was taught as a school subject. It was thought at the time of the commencement of teaching laundry work that it was a very good practical subject for girls, but it was impossible to make it educational. After twelve months, however, an official from the Department visited one of our centres, heard a lesson, and was quite convinced that teaching laundry work could be made not only very useful as a subject of labour, but also educational by teaching the children the why and the wherefore of every process they carried out.

6427. It has been found possible to work it on those lines?—Yes.

6428. Are you satisfied with the working of the

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system?—I think it has everywhere been acknowledged to be most successful both in its practical and also in its educational aspects.

6429. Are you satisfied with the buildings as you have them at present?—Yes; it is most important in connection with the building of a laundry centre that it should be lofty and well ventilated. We have a minimum size of 22 feet by 25 feet. I think it is quite impossible to teach laundry work to thirteen or fourteen girls in an ordinary house, because the heat is so intense.

6430. Monsignor Molloy.—You have only given us two dimensions, 22 feet by 25?—I don't think I have the complete area, that is only the floor.

6431. Could you tell from memory what the height would be?—I should think probably about 15 feet.

6432. Chairman.—The class would consist of fourteen or fifteen girls?—Yes, that is the number allowed by the Department: there is a large amount of apparatus required in connection with a laundry centre, and a considerable floor space is required for the ironing tables. We find that a class of fourteen girls is sufficient for one teacher to manage, especially during the ironing lessons.

6433. I suppose you have a syllabus that regulates the general direction of the course?—Yes.

6434. The course is graduated, I take it?—Yes; it is a very important part of the teaching of laundry work that the teacher should not attempt too much each lesson. Since we commenced this subject a great many School Boards and managers of voluntary schools have added this subject to the curriculum of their schools, and have to a great extent followed this plan. I always maintain that the teacher ought not to give combined washing and ironing lessons in the early part of the course. I find in London that one of the chief things is to teach the children to wash properly, and if they have to wash and iron in one lesson in the early stages they are inclined to do the thing too hurriedly; so our syllabus is graduated, commencing with a lesson on the materials the children will use—soap, soda, and blue—the general composition, as far as it is useful; then they go on to the processes of washing, drying, folding, mangling, starching, and ironing; and towards the last we have combined washing and ironing lessons.

6435. But you hold by the sound educational principle of dealing with one thing at a time?—Yes, very strongly.

6436. You avoid placing the work of this department on a commercial basis?—I feel very strongly on that point. In the early part of the course the Board were anxious that we should undertake washing for different people, but if you do that, it always involves on the teacher's part the necessity of getting through so much practical work in a lesson, and the educational part is probably left out.

6437. The girls take notes of the lessons?—Yes; they have a short epitome of each lesson given to them on the black board, which they copy in their note books.

6438. The teaching consists of two parts—there is a demonstration given by the teacher, and the work is done by the children. Are these two exercises given during the same school attendance?—The teacher first of all gives a short lecture to the children and illustrates it by a demonstration.

6439. When does she begin a lecture?—About nine o'clock.

6440. Children are allowed to come in between nine and half-past nine?—We generally find they get there in time.

6441. And if they come late, they must miss a little of the teaching?—We don't find very many children come in late; they take a great interest in the work.

6442. How long does the preliminary lecture last?—Generally three quarters of an hour to an hour, and after the lecture and demonstration the children do the actual practical work. In some of our lessons in washing, we find it an advantage to have two short lectures and demonstrations. For example, in a lesson on washing, rinsing, and blueing, we find it a very good thing to have a lecture on the washing and boiling of clothes: the children see the demonstration, and practise the washing and boiling; then they go to their seats, and while the clothes are boiling they have a lecture and demonstration on rinsing and blueing. Then they finish the work by rinsing and blueing their own clothes.

6443. So there are three exercises: first, the teacher explains what is to be done; secondly, the teacher does it; and thirdly, the children do it; and these three are all combined in the same lesson?—All combined in the same lesson. In some schools not under the London School Board, they take a large number of children at one time and give a lecture, and then the next week, when the children come they practise that lesson. Personally I do not agree with that method, because I find the children forget so much; if they have the practice immediately after the lecture it fixes the lesson taught on the memory.

6444. As to the teaching of housewifery, what does that subject embrace?—It is a combination of cookery, laundry work, and household management. The children have taken cookery and laundry before they take housewifery, and having learned these things they come to this little cottage, and we test the teaching that has already been given, and see if it is practical, that is, if it can be applied to home life.

6445. In this little cottage the children have to work with the ordinary household appliances?—Yes.

6446. What does household management, as you understand it, include?—That includes table setting, making a bed, fire-lighting, cleaning rooms, knives, spoons—in fact, all the little details of the house, not forgetting home nursing, thrift, personal cleanliness, and the like.

6447. Can this be taught as an educational subject?—Very largely indeed, almost more so than laundry work. Every lesson given seems to be full of elementary science, it takes in the question of ventilation and drainage; the question of firelighting lends itself to elementary science, and even the question of cleaning a lamp.

6448. Do you find it easy to get competent teachers?—We do not, because this is one of the newest subjects. I am the superintendent for the Joint Committee as well as for the London School Board, and in connection with my work there, I have a class for teachers where I am training them in housewifery, as a temporary arrangement.

6449. Is there a diploma under the Science and Art Department?—Not for housewifery, but for hygiene and physiology, and we require each teacher to obtain these certificates.

6450. Do you insist on that at present?—Yes, we have only three housewifery teachers at present, and they have all obtained these certificates.

6451. In the regulations it is stated that if persons are appointed who have not got the certificate, they are expected to get the certificate as soon as possible?—Most of our teachers are already getting them, and I don't think the Board will open centres until the teachers are prepared.

6452. Teachers in London have every facility for getting such certificates?—Every facility.

6453. Mr. Struthers.—The temperature in the laundry room is rather important?—Very important.

6454. At what temperature do you keep it during the ironing?—We try to keep it as low as we can, in the summer-time a great deal depends on the centre itself.

6455. At this time of the year at what temperature do you keep it?—I don't think I can give you the exact temperature.

6456. You never have it as high as to be uncomfortable for the children?—We do our best not to have it so; I should not like to say that in some of the badly constructed rooms it is not so.

6457. You mentioned that this housewifery class permits you to test cookery and laundry work, to see if it is of a practical nature?—Yes.

6458. Do you find that the teaching of cookery in the ordinary centres stands this practical test?—I should not like to say, we have only had this centre open a short time.

6459. But I dare say it has brought to light little defects here and there?—I scarcely like to give an opinion yet.

6460. If it did, it would be a useful means of remedying the defects?—Yes.

6461. So that, from that point of view, it is a most useful class to have?—Yes.

6462. About the teaching of domestic economy, you have some experience of that?—Yes.

6463. It is taught chiefly from books?—In the schools.

6464. Does it go the length of the children learning off by heart from books?—An intelligent teacher would always give a certain amount of explanation, but a number of teachers have found that when giving a lesson, say, on bed-making, that it would be a real help if they had the bed there to illustrate each point in the lesson. Domestic economy, when taught in the centres as a combined theoretical and practical subject, is omitted from the ordinary school work.

6465. Chairman.—You have stopped the purely theoretical teaching?—Stopped the purely theoretical teaching, and made a combination of theoretical and practical work. The Board are trying this as an experiment in three parts of London.

6466. Mr. Struthers.—From what you have seen do you think that the purely theoretical teaching is worth the time spent on it?—I should think it is an advantage to have theoretical teaching rather than none at all, but I certainly think this combination is a great educational advance.

6467. You would not set a very low value on it?—I would not, because the reading of books to the intelligent girl would be a great help, but at the same time it could not have such real results. I think the gentlemen who were at the centre this morning would see that for themselves.

6468. Rev. Dr. Wilson.—With regard to lighting fires, what are the special instructions you give?—We give a short lecture on the composition and necessity of air, then we go on to explain the laying of the fire so as to allow a free passage of air, economy in the use of sticks, and the importance of warming the air in the chimney.

6469. Chairman.—Do they know what oxygen is?—The teacher performs certain little experiments to illustrate every point, but in most of the London Board schools so much elementary science is taken that now it is not at all a new term for the children.

6470. Mr. Molloy.—Is it to be understood that a teacher of cookery must have a certificate from the Science and Art Department in hygiene and physiology?—Yes, those who take domestic economy.

6471. Having these certificates, the teacher may attend your centre to gain a certificate in cookery?—I don't train in cookery to gain a cookery diploma; there are certain regulations of the Department, and to pass, a teacher ought to give more than twelve months to training in cookery alone.

6472. Mr. Redington.—How many lessons would the twelve months include?—Every day; a teacher of cookery has to be examined not only in practical cookery but in psychology and in the art of teaching. A great many of these ladies have never had any experience of managing children, so they have a series of lectures on the theory and practice of education, in addition to the practical lessons in cookery, and they take a certain amount of chemistry, theoretical and practical, bearing on their special work.

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6473. Mr. Molloy.—Those who enter with a certificate in hygiene and physiology and wish to get your certificates of cookery, do they pay any money?—The School Board and the Drapers Company provide for that; they only pay a nominal fee of one guinea.

6474. How long do they have the advantage of your teaching?—They stay on until they can do the work.

6475. When can you approximately give the certificate?—For the certificate in housewifery, there is no time fixed; for diplomas in cookery and laundry, the time is regulated by the Education Department.

6476. How many lessons a week?—The teachers for housewifery selected by the Joint Committee, have a very good preliminary training, so they don't require to give so much time to it; at present they give two evenings a week and Saturday, and then they work in the centres under some of the other teachers.

6477. You referred a moment ago to the difficulty of a room being overheated?—Yes.

6478. In private houses is not that difficulty got over by the steam escaping through a chimney—Yes, but then in private houses very likely only one person would be ironing, and in a laundry centre fourteen persons would be ironing, so we require much more apparatus for heating irons.

6479. What is the expenditure per head of the children?—I don't think I can give you that; the cost of materials never came to more than 2*s.* 6*d.* a week for the whole centre. It is a very small amount; we teach them to make everything we possibly can in the centre; one of the great lessons in housewifery is economy.

6480. What is cooked by the children is purchased by the teachers?—Yes.

6481. May the pupils themselves bring home what they cook?—They can if they pay for it.

6482. Monsignor Molloy.—You said some knowledge of psychology was required by the teacher of cookery—I think it would be an advantage if you briefly explained what that means?—We adopt the science and art of teaching, probably it would be better to express it in that way—how to form good questions, and how best to impress things on children's minds by showing the likeness and unlikeness, comparing one thing with another.

6483. Practically what is required is some skill in the art of teaching?—Yes, and the cultivation of certain faculties by domestic subjects.

6484. Mr. Redington.—In giving lectures do you treat of elementary chemistry, as far as it affects washing?—Yes.

6485. You explain to the pupils the effect of the different things that are used?—Yes; for example, we show them the effect of soda upon coloured articles, and the effect of hard and soft water upon soap.

6486. Do you treat of it at any great length?—The teachers have had a course of lectures by a science teacher, so that they are able to explain these things to the children, as they see it is required.

6487. If a lesson of three hours, or two and a half hours even, could not be given, what would be the minimum length of the lesson and demonstration combined?—A great deal would depend on how much the teacher wanted to take up in that lesson; I think in connection with most of these subjects not less than two hours.

6488. How much time should be given to lecture and demonstration on the part of the teacher, and how much to practice on the part of the pupils?—About half; I think it is very necessary the children should thoroughly understand what they are going to do before they attempt to do it.

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FOURTEENTH PUBLIC SITTING.—SATURDAY, MARCH 27, 1897,

AT 10 O'CLOCK, A.M.,

At the Examination Hall, Victoria Embankment, London.

Present:—His Grace the Most Rev. WILLIAM J. WALSH, D.D, in the Chair; The Right Hon. C. T. REDINGTON, M.A.; His Honour Judge SHAW, Q.C.; The Right Rev. Monsignor MOLLOY, D.D., D.SC.; Rev. HENRY EVANS, D.D.; Rev. HAMILTON WILSON, D.D.; Professor G. F. FITZGERALD, F.T.C.D.; W. R. J. MOLLOY, Esq.; Captain T. B. SHAW; and J. STRUTHERS, Esq., B.A.;

with J D. DALY, Esq., M.A., Secretary.

SIR JOSHUA FITCH, LL.D., examined.

Sir Joshua Fitch, LL.D

6489. CHAIRMAN.—It is not necessary, Sir Joshua, except as a matter of form, to say that you have filled a number of offices of the highest importance in connection with the work of education in England?—Yes: I was Inspector of Schools for many years, and afterwards a Chief Inspector, and for the last seven years of my official life I was the Inspector of Training Colleges, chiefly those for women, but I retired from the public service rather more than two years ago, and therefore my experience and knowledge are not quite so recent as that of most of your witnesses.

6490. Still you will allow me to say that we attach the very greatest importance to your opinion upon all the subjects of our inquiry. About two years ago you retired from active service?—Yes.

6491. For some years before that, you had been specially in charge of the training colleges for teachers?—Yes.

6492. In England the training colleges are under the special care of two of the Chief Inspectors?—Yes, at present. Since I left, the two inspectors divide both the men's and women's colleges between them on a territorial basis, but in my time in accordance with a principle that had been in operation for many years, one inspector took the women's colleges, and the other the men's colleges. My duty was to take the women's colleges, and therefore I came most into contact with the infant teaching as well as the teaching of the girls' schools, though I shared with my colleague the responsibility of drawing up all the syllabuses of studies, and of examining the men and women alike for their certificates.

6493. I think it was during your official connection with the Education Department that manual instruction was introduced into the elementary schools in England?—Yes.

6494. And you had experience of the schools before the introduction of it, and afterwards?—Yes. It began in 1881 under Mr. Mundella, and it was first of all recognised in connection with infant schools; in 1881 we inserted—when I say "we" I hope you will not consider that egotistical——

6495. I know enough, Sir Joshua, of the history of this matter to say, if you will allow me, that you may safely say "we"?—I was one of what is called the Code Committee, which had the supervision and arrangement of the Code during some ten or twelve years after that, but it was in Mr. Mundella's time, in 1881, that in forming the articles of the Code which affected infant schools, we introduced for the first time these words—in article 98—which define the scope and purpose of a good infant school:—"There shall be provision made first for suitable instruction in the elementary subjects; secondly, simple lessons on objects and on the phenomena of nature and of common life; and, thirdly, appropriate and varied occupations." That was the first recognition, as far as the Education Department was concerned, of anything like manual employment; it applied first to the infant schools; it was a long while before it was recognised as part of the higher school work.

6496. When it came to be recognised as part of the higher school work, the recognition came to it as a development of the kindergarten work, and on kindergarten lines?—"By appropriate and varied occupations." It is a curious phrase, but it was partly borrowed from the phraseology then in use among kindergarten writers and specialists. It merely meant those simple interesting manual employments which Froebel invented and which were first adopted in some of the German schools.

6497. And the object of these occupations was, I suppose, to train the hand and eye, and, to a certain extent, also to cultivate some mental habits?—Certainly; you probably have had those considerations fully before you in various ways that I need not dwell upon.

6498. No matter what we have heard, we should all wish to have your opinion on every subject of our inquiry?—I think that the introduction of this manual employment has been a distinct gain to the intelligence of the children and to the general usefulness of the infant classes. Up to this time the inspectors had no other guidance in forming an estimate of the infant schools than was furnished by the examination in reading, writing, and arithmetic, even for children below seven. And there was very little of other training except just a few object lessons and some lessons in form and colour. But from this time increased attention has been given to the importance of those simple exercises which are designed to train, as you say, the eye and the hand, and the faculties of observation, and the habit of exactness; I think that the effect of this has been twofold. First, it has greatly increased the happiness of the infant classes, it has prevented the little children being forced too early to anything in the form of lessons, and then, in the second place, the varying of the day's practice with these interesting occupations has had such a general effect upon the intelligence of the children that they make quite as much progress in reading, writing, and arithmetic, as they did before, when those were the only things recognised. I think all teachers will give you that testimony. At first people said "You are withdrawing the little children, whose school life will be very short, from the serious business of the school, from reading, writing, and arithmetic, which they never learned thoroughly well after all, and you are just introducing a good deal of organised play, which is practically rather a waste of their limited time." All experience contradicts that theory and shows that if the teaching of the elements of reading, writing, and drawing and counting are judiciously alternated with the playful Froebelian exercises. the children make in the long run better progress even in the elements of instruction than heretofore.

6499. So that they are then better prepared for the work of the various standards?—By the age of eight they are in a better position to enter upon the work of the higher school than they would otherwise have been if they had attended to nothing but reading, writing, and arithmetic in the infant school.

6500. Well, you have described to us the introduction of these manual elements into the school work in 1881, what was the next step that was taken in this connection?—Well, it was a long while before these new requirements bore fruit. We had not teachers who were accustomed to it. And when they first heard

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of it, the thing was new to them, and many of the individual teachers who were too old to go back to training colleges said "What does the Froebelian system mean?" and they went and bought a shilling manual of the occupations, the card-cutting, a little embroidery and brick-building and modelling, and they began as well as they could to introduce the manual occupations into the schools; but how to make all those occupations really helpful to the intelligence of the children and part of their intellectual training it was not to be expected that they could learn all at once. They only took it up in a more or less mechanical way; they thought, not unnaturally, that the problem was to be solved by using these occupations, without any reference to their educational value. But I am bound to say that our teachers behaved extremely well about it. They took great pains to qualify themselves, to know what was the principle that underlay the Froebel teaching. They got lecturers to collect them together in different places and to show them how they might make these exercises really disciplinary and intelligent, and from the very first we pointed out to the authorities of the training colleges that they should not turn out any female teachers, at any rate, who had not some knowledge of the system; and from that moment all the training colleges have, either by the introduction of a special lecturer, or else by having some of their own staff specially trained, taken care that lectures and illustrations on the kindergarten system should be an integral part of the normal school training.

6501. And, I suppose, especially in reference to this branch of work, the Training College aims at instructing the teachers how to teach it to the children?—To be sure. And that is why, now that this is sixteen years old, we are getting every year a much larger number of women teachers introduced into our elementary schools all over the country who have had this special training, and have had the principles of the kindergarten system expounded and illustrated in the Training Colleges.

6502. You consider, no doubt, that a very special capacity is required for teaching infants, there must be a special aptitude for it?—Yes, it is very desirable; but you cannot expect the same natural gifts everywhere, and where you have not got them or where they only exist in an imperfect state, the best you can do is by training to make as much of them as you can. I think that a great deal of what is excellent in the kindergarten system is capable of being imparted by good lectures and model lessons and illustrations in the Training Colleges.

6503. And you found, I dare say, that the work of the Training Colleges in this respect has been successful?—Yes. I hope the Commission will have an opportunity of seeing one or two of the best of the Training Colleges for women where the whole of the manual work is thoroughly well-organized, and is made a necessary part of the teaching, not merely of those who are going to be infant school teachers, but of all the women teachers who are in the college.

6504. Rev. Dr. EVANS.—Would you mention, Sir Joshua, one or two of the best?—I will say that at Whitelands and Chelsea you would see something of it, and at Stockwell, which is the Training College of the British and Foreign School Society. I am carefully avoiding expressing or implying any preference for one denomination rather than another; therefore I think you would do well to see Whitelands as one of the most important of the Church Training Colleges; Southlands, near Battersea, is the Wesleyan Training College, where they have paid great attention to it; the College at Stockwell is under the British and Foreign School Society, and has, perhaps, a larger provision for manual training than either of the others; and as a second Church of England College I should like to mention Tottenham; I only mention those within easy reach of London.

6505. Captain SHAW.—We are going to Liverpool; are there any there?—By all means see Edgehill, and the admirable college at Mountpleasant, the College of the Sisters of Notre Dame; but within London the four I have named, Tottenham and Whitelands, both of the Church of England, Southlands near Battersea, which is Wesleyan, and Stockwell, British and Foreign.

6506. CHAIRMAN.—Some of the Commissioners have visited Westminster Training College, which I believe is a very efficient one?—That is for men; but the Wesleyans have two colleges, and the one for women at Southlands is one in which the kindergarten system is more likely to be well illustrated.

6507. I understand that the Wesleyan Training College at Westminster is one of the few Training Colleges that have taken up manual instruction for men?—I don't know it quite so well; you would do well to see them all.

6508. I am afraid at this time we cannot visit any more colleges in London; but in Liverpool we should see those two?—Pray see Stockwell; and the Home and Colonial in Gray's Inn Lane is also very good.

6509. After the kindergarten had made good its footing in the infant school, what was the next step taken for the development of this side of educational work?—Well, that is later.

6510. Perhaps there is something else you may wish to say in reference to the kindergarten, before we pass on from it?—I think I have said the two principal things—first, that the general instruction in the elements of reading, writing, and arithmetic has not suffered by it; and, secondly, that it has greatly increased the general intelligence of the children. I think I ought to add that the most enthusiastic advocates of the kindergarten system have never been quite satisfied with the Department's treatment of the subject; they say children ought to be kept up to the age of six or seven carefully excluded from books or writing, or anything that takes the form of lessons, and that you should reserve all formal instruction in reading, writing, and arithmetic until a later age; I believe that those who have paid the most attention to the subject, and who are applying the kindergarten principle to the higher classes of children, who are likely to have more leisure and stay longer at school, have always consistently maintained that you should not begin regular instruction so soon.

6511. I believe that is the kindergarten system, pure and simple?—Yes.

6512. In the original conception of the kindergarten,—the nursery, as we may call it,—the kindergarten is a thing altogether apart from the school, even from the infants' school?—That is a doctrine which has never been adopted by the Education Department, partly because of the very limited time the children can stay at school at all, and partly because experience proves that if there is judiciously mixed with these pleasant exercises the elements of reading, writing, and arithmetic—they can be very well taught to children at a much younger age than seven—they don't assume the form of severe lessons; the lessons are short, but little children are just as much interested in learning the beginnings of reading and writing as they are in paper-folding, stick-laying, weaving and such employments.

6513. Monsignor MOLLOY.—Which view do you adopt yourself?—I think that from the very first, it is good that the children have the elements of reading, writing, and arithmetic duly interspersed with other exercises. I don't like trying, as they do in America and as some of the more enthusiastic kindergarten people do, to treat the Froebelian system as a thing wholly outside the ordinary course of instruction; I should like to see it duly incorporated with the elementary teaching in these subjects which a child will have to do hereafter.

6514. CHAIRMAN.—And in as far as you have the system in England, it exists in that form?—Our Code distinctly lays it down that there are three distinct requirements, one of which is the elements of reading, writing, and arithmetic.

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6515. You may be interested to know that we have the kindergarten exercises in Ireland, and they are conducted on that principle as part of the school system. Now, passing on from the kindergarten, let us come to the next section of the work—the manual exercises and employments by which the work of the kindergarten is extended up into the ordinary classes, or standards as you call them in England?—Experience, I think, has shown that these manual employments have served so useful an educational purpose in the infant schools, that it was desirable to extend it a little further, and to introduce it into the higher schools, and consequently we have little by little encouraged the introduction of manual employments into the earlier standards, and you have probably before you the arrangements which the Science and Art Department have adopted for encouraging manual work in later stages of the boy's or girl's career.

6516. Especially in the fifth and sixth standards?—Yes; in Belgium there are some schools in which there is a regular succession of manual employments right through the school from the age of seven up to fourteen or fifteen, bearing the same relation to the general school instruction as it does in the infant school—not quite so prominent—not perhaps spending more than two hours in the week on it; and in an admirable school which I once visited in Belgium, the *école modèle*, they had paper-folding, geometrical patterns, little inventive drawings, and modelling, and carving in wood, and colouring of designs carried right through the school, so that they formed an integral part of the whole scheme of instruction, that scheme including mathematics and the elements of science, and at the same time a regular series of manual employments.

6517. Where in Belgium is this school; is it in Brussels?—Yes, that is the one that struck me most, but there are a good many schools in different parts of Belgium, and indeed in France too, in which the same principle is carried on, but that not with any distinct reference to the industry by which the pupil is to get his living, but to draw out and encourage the exercise of faculties not otherwise sufficiently regarded in the ordinary school course, for instance, the habit of close observation, perfect accuracy of hand and of eye, and also careful measurements. I saw the other day in a girls' school in Newcastle modelling in cardboard, and there are exercises there not merely for exact cutting out of patterns and fixing them, but for certain inventiveness and taste in bringing the colours together, and devising new forms of ornamentation. I think all teachers who have adopted those methods have found that they quicken the general intelligence of the scholars, and at the same time give to many scholars who are not bookish a chance of attaining excellence and of doing something which they can do well. It has a very good influence upon their general training. On the other hand, if it is not improper for me to say so, I think it is very easy to exaggerate the importance of this matter. I think many enthusiasts have been a little disposed to think that the world is going to be regenerated by turning schools into workshops, and that we ought to give up book instruction to a much larger extent, and call in the workman and set boys to use tools, instead of using books. Of course that is an exaggerated form of claim, one with which I never sympathised; but I certainly have felt that within its proper limits the carrying forward of some form of manual instruction right through the whole scheme of education up to the secondary school is a step in the right direction, and has done distinct good.

6518. To what extent do you think that work of this kind should be allowed to occupy the school time, say, in the course of a week?—Two hours I should think quite enough in the week.

6519. Two hours practically represents one school attendance with you in England?—Yes.

6520. It is the practice in England to give one school attendance in the week to this work?—Well, two hours is the minimum of one school attendance. As a matter of fact each school attendance in the summer is nearer three hours than two. Perhaps I may add that this same principle is beginning to be more and more recognised in our higher schools. I happen to be a governor of St. Paul's school, which is one of the greatest, and most ancient, and richly endowed of the public schools in England, and we had only yesterday an application from the head master for some provision for a workshop. These boys are nearly all going to the university. The desire is to have a regular system of hand-work under supervision. The use of tools, wood-carving, and simple carpentry is increasing. You will find it at Clifton and also at Rugby.

6521. Professor FITZGERALD.—At Shrewsbury?—Yes, at Shrewsbury, also, I have heard.

6522. CHAIRMAN.—So that here in England, in schools in which it is no part of the work of the school to prepare for industrial careers, they regard this practical work as an important part of a good all-round education?—Especially in quickening the faculties which ordinary book work in the school does not bring out.

6523. You mentioned the view taken by teachers with regard to kindergarten work when first introduced; you spoke of their want of appreciation of it—for which no one could blame them, in view of their then uneducated condition,—now may I ask you was there any feeling of opposition on the part of the teachers when manual instruction was carried on to the higher grades?—No, I have had no experience of the working of it since the Code recognised manual employment in the higher schools. You will find in our Instructions—"It should not be forgotten that the principles which underlie the principle of kindergarten occupations do not cease to be applicable when a child leaves the infant school or department." This is the latest one, but it was drawn before I left the department as I had good reason to know. "For example, elementary drawing, dialogues, picture and object lessons, the cutting out and inventing of paper patterns, modelling, weighing and measuring, muscular drill and the use of simple tools are not only useful in diversifying the day's employment in the lower standard of the school for older scholars, but they will be found to increase the brightness and intelligence with which these children pursue the regular course of elementary instruction."

6524. And the same view is taken of them in the higher standard as in the lower, in reference to general educational advantage?—Yes, I ought to say that one form of manual instruction, namely, drawing, has now become a necessity in all schools; you are aware of that.

6525. But it was made compulsory in England for boys' schools only about two or three years ago?—Yes, that was just before I left, but that was in accordance with a strong recommendation of the Technical School Commission.

6526. It is not compulsory in girls' schools?—No.

6527. And I think it is not even recognised in girls' schools unless cookery is taught in the higher standards.

Captain SHAW.—It is not paid for?—It is not disallowed.

6528. CHAIRMAN.—It is merely recognised as harmless?—Well, you see the girls have needlework, and if the digression is not altogether unsuitable, I should like to say that the needlework which has held its own for a long time as a necessary employment in every girls' school is, of course, the most important and appropriate form of manual labour for them. But I am bound to add that its educational value, quite apart from its practical value, does not seem to me to be great, and I think it is a warning to us not to expect too much from mere manual exercises which don't also bring out the intelligence. Now needlework is a very useful art as we all know, but it is an art that children may sit and dawdle over for many hours in a state of complete mental vacuity; there is

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extremely little in needlework, as commonly taught, to draw out intelligence or inventiveness or mental effort of any sort. If you have to make a pattern and to connect it with the teaching of geometry then the training is valuable both ways. If modelling is closely connected with drawing and design and other exercises which cultivate the habit of accurate observation, then modelling becomes a useful educational instrument; but merely for its own sake the handwork, if it is separated from head work, seems to me to be extremely unsatisfactory.

6529. Educationally, Sir Joshua, which of these two arrangements would you prefer in a girls' school, one in which two hours a day would be given to needlework, or one in which only one hour would be given to needlework and one hour to drawing?—I should not like to spare two hours a day even to the two together; I think the way in which little girls have had their intelligence, I was going to say crushed, at any rate discouraged, by the enormous amount of merely manual work that is put upon them is rather sad to consider; I believe everything that is worth doing in the way of the teaching of needlework might be learned in less time. I don't mean the manufacture of garments which they want to sell, a thing of which managers often think a great deal.

6530. I am afraid in Ireland they look upon needlework merely as a manual occupation?—And as a means of producing garments for sale or otherwise. Now, that is not the proper business of a school. The proper business of a school is to give instruction in the art of needlework, and to give as much of practice as is needful to make that instruction effective, but the moment you go beyond that, and think it is the business of the school to make garments, you are turning the school into a workshop, and you are, *pro tanto*, discouraging the intelligence of the children. I think girls have suffered very much from this cause.

6531. It may, of course, be necessary to make a garment in order to teach needlework?—Quite so. I said so much of the practice as is necessary to make the teaching effective in practice for the purpose of manufacturing garments.

6532. You, looking at the matter from the educational point of view, would not wish to have needlework taught in such a way as to make the teaching of it useful only for needlework?—Yes, treated as a useful, practical art. I don't wish to sacrifice most of the school time for it, and some of the best needlework I have seen has been in schools where only one afternoon a week was devoted to it.

6533. Professor FITZGERALD.—Don't you think it desirable to have something complete made in order to interest the children in the object they are working at?—Yes, that is worth considering; but I think the inference from it, if it leads children to spend a disproportionate amount of their school time on the mere mechanical art of needlework, is probably misleading.

6534. Mr. STRUTHERS.—The girls are required to show a garment?—Yes, as having been done in the year.

6535. CHAIRMAN.—It is only by getting them to make garments that you can interest them in the work?—That is true, and up to that point I think it is very important that you should have the garments made.

6536. You look upon the making of garments rather as a means to an end in this branch of work—not that the needlework is to be directed to the making of garments, but that the making of garments comes in as a means of making the educational needlework more effective and interesting?—Yes; and to make garments is a thing worth attaining, no doubt, but I think it counts for too much in the eyes of school managers, and I think we may sacrifice too much in our desire to get garments that we can look at and sell.

6537. It may interest you to know that in Ireland some years ago an effort was made by the National Education Commissioners of that day to extend the needlework branch of school work, and a system of two hours a day was introduced for the higher standards, but there has been a practical revolt against that system all over the country?—I am glad to hear that, for I feel sure you pay too high a price for your needlework if you give two hours a day to it.

6538. So there are schools in England, in which needlework goes on, but is not really taught in a way that is of any educational value?—The methods of teaching needlework now have much improved; they have demonstration frames, by which the teacher illustrates how the stitches are to be made, and a certain amount of supervision secures that there shall be real teaching, and economy of time.

6539. But a good deal that goes under the name of needlework in schools is mere sitting down and stitching away, without supervision or knowledge of the best way of doing it?—I can only repeat that what modern school teachers can teach of needlework in two hours or one afternoon in a week is as much as we should desire in a school.

6540. May I ask whether in the English training colleges for women, attention is paid to that distinction between the two views that may be taken of needlework—viewing it merely as a form of manual occupation and viewing it from the educational side?—Yes. I feel that as a manual occupation it has, of course, its value.

6541. Do the training colleges attend to this important distinction?—I think they are thoroughly familiar with it; you will see that the inspectress of needlework visits each of the training colleges, and makes her report and calls upon everyone of the students who is a candidate for a certificate to give a lesson there and then to a class of scholars as to how to go about the right use of the needle and the cutting-out of garments. We want more teaching and less practice in our schools, more attention to the principles on which the work is done.

6542. With reference to working in wood and metal, has that branch of school work come much within your experience?—Not much. I have seen examples of it in many schools, but since it has been especially encouraged by the Department it has not been within my experience to watch or estimate the value of it.

6543. I should wish to have a definite expression of your opinion upon the introduction of such exercises as paper-folding and card-board building, and working little devices in wire, such as they have in Birmingham,—do you consider that educationally such exercises as these are of use in a school?—Yes; of very great use.

6544. Provided, of course, that too much time is not given to them?—Yes.

6545. What would you consider sufficient time, two hours, or from two to three in the week?—I should not like to fix it. The intellectual exercises of the school are after all, and always must be, the most important, and I don't want to see them reduced very much.

6546. Is there not an intellectual exercise of very great value in these manual occupations when properly worked out?—Yes, if intelligently taught.

6547. That is, if they are not treated, as needlework too often is treated, as mere handwork?—Certainly.

6548. Mr. REDINGTON.—If manual work were being introduced into a school, what subjects might be omitted to make room for it; would it be necessary to omit any at all?—I am not sure that it would.

6549. In Ireland we have fewer hours unfortunately for school work, and, therefore, it would be perhaps more difficult than it is in England to introduce this manual work without excluding a subject or lessening the time given to a subject?—*Witness.*—May I ask how many hours a day you have?

6550. CHAIRMAN.—In Ireland we have only one school attendance in the day, and that, as far as any obligation extends, is an attendance of four hours?—Of which one is probably given to religious instruction.

6551. Oh, no; the four obligatory hours I speak of are for secular instruction?—*Witness.*—May I ask is the curriculum a wide one?

6552. Mr. REDINGTON.—There are more com-

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pulsory subjects than in England, viz.:—reading, writing, arithmetic, grammar, geography, spelling, and book-agriculture for boys.

Witness.—Is all that indispensable?—

Mr REDINGTON.—Yes, in rural schools.

Witness.—And needlework for girls?—

Mr. REDINGTON.—Yes, everywhere.

CHAIRMAN.—Let me explain to you, Sir Joshua, that what goes under the name of "agriculture" in our Irish system of National Education is merely learning a lot of names and such things out of a book.

6553. Mr. REDINGTON.—Do you think that English grammar and geography might possibly be omitted or made optional?—I should not like to make either of them optional, because English language, I don't mean formal grammar, but English language, with the sort of exercises in simple composition, word-building and word-analysis, which is to be found in the best schools, seems to me one of the most fruitful and valuable intellectual exercises you have. I should be sorry to see that given up. It is a mere question of proportion. I think there ought to be time found in the week's curriculum for all of them, but the old idea of grammar as the art of speaking the English language with correctness, and by learning the rules of syntax, is of course not prevalent now among any good teachers, but exercises in English, in the meaning of words and the structure of sentences and composition seem to me indispensable.

6554. Analysis of sentences and parsing?—I think that is very valuable.

6555. CHAIRMAN.—Of course you do not mean that kind of analysis which consists in drawing a framework, a sort of geometrical figure, and fitting every word in an unfortunate sentence or passage of Shakspere, or Milton, or Goldsmith, into its proper space?—It depends on your teachers; there are some who make that a most wooden and foolish exercise; there are others who can inspire the children with very keen interest in examining the meaning of words and sentences.

CHAIRMAN.—I could wish, Sir Joshua, that all our teachers were familiar with your treatment of the subject as you have dealt with it in your published lectures.

6556. Mr. REDINGTON.—As to geography, would you approve of teaching it by means of geographical readers rather than through an ordinary geography?—The best teaching in geography is oral teaching, the teaching of the man who can take his coloured chalks and his blackboard and let a map grow under his hand as the facts are elicited one by one. I should be very sorry to see any book work supersede that, but when a teacher has given a good oral descriptive lesson, it is very valuable for him to have a reading book to turn to to give definiteness to what has to be remembered.

6557. A geographical reader rather than a book full of statistics?—Certainly; descriptive geography is the thing for a reading book, but oral teaching in geography seems to me most important.

6558. Monsignor MOLLOY.—Oral teaching supplemented by the blackboard?—Of course, you cannot teach well without it, and many teachers make very interesting models in clay or wax, showing the physical formation of the district they are trying to describe.

6559. Professor FITZGERALD.—That would be more physical geography?—As an intellectual exercise physical geography is worth a great deal more than mere topography or statistics about the length of rivers or heights of mountains, which is very uninteresting and useless.

6560. Mr. REDINGTON.—Is agriculture taught in any English school from a text-book without practical experiments?—I am afraid there is a great deal of it, but the Science and Art Department are responsible, I think, for what is done in agriculture, and it has not come much within my purview.

6561. Is it not a specific subject in the Code?—Oh, yes.

Captain SHAW.—I don't think it is taught to any large extent in the schools in England.

6562. Mr. REDINGTON.—Could you give any opinion as to the value of agriculture when taught from a text-book?—My opinion, I am afraid, would hardly be of any service to the Commissioners.

6563. Monsignor MOLLOY.—With regard to needlework, do you not think that besides its educational value, it would be well to keep in mind its usefulness as an equipment for a woman, for the ordinary business of her own household?—Most certainly. I should be sorry if anything I said admitted of another interpretation; I think it is indispensable that every girl who goes out at thirteen or fourteen should know how to sew, and even how to make her own clothes.

6564. I think your chief objection is that there is too much of it, and that it is too mechanical?—Yes, time is wasted over it, time wholly disproportionate to any results obtained.

6565. Would you object to the teaching of dress-making in the higher classes of girls' schools, so as to enable those girls afterwards to apply their knowledge in their own households?—Yes, but there you get beyond the sphere of the elementary school; I think there is no more reason why you should teach dress-making as an art by which you are to get a living than teach tailoring or shoemaking to boys.

6566. I did not suggest that it would be a means of obtaining a living, but a means of a woman fulfilling her ordinary duties in her own family?—Yes, provided you keep in view the importance of other branches of knowledge and don't sacrifice too much to that which is after all particularly likely to be overestimated because it is exactly the thing that the uninstructed can understand. A parent, however ignorant, knows the value of teaching which enables a girl to come home and make her own dresses, and probably an ignorant parent is wholly unaware of the importance of general mental cultivation.

6567. If sufficient provision be made for general mental cultivation, you would not object to girls being taught dressmaking in the higher classes?—Not if there is time, and the children stay long enough at school.

6568. In point of fact, under the London School Board, in standards 6, 7, and ex-7, you really are giving a higher class of elementary education than what is intended for the general bulk of the children?—Yes.

6569. And therefore, I think your objection would not apply to dressmaking being taught in these standards?—No; and may I add one thing on that point. The ambitious exercises of the seventh, and ex-seventh standards in the Board schools, have been a great deal objected to, on the ground that they were encroaching on the proper province of secondary education. But it ought to be considered that we have no proper organised system of secondary education, and that the Boards have been encouraged, and I think legitimately encouraged, by the absence of such a system to push their own opportunities of usefulness to the furthest point they could. If we had an organised system of secondary education the Boards would not have an ex-seventh standard for instance, but they have been induced to have it because such a standard supplied a want which they were conscious of, and which the parents also felt.

6570. Then I think you agree with me in considering that in these higher standards the School Board has really advanced beyond what is usually treated as primary education; but they have done so with advantage because there was a want which they have provided for?—And for which no other provision existed.

6571. And also in these higher standards they give a more practical and so to say industrial bent to the children's minds than is given in the ordinary secondary schools of the country?—Yes, that raises a very important question; they have been induced to do this because at the seventh standard the grants from the Education Department cease, and therefore the only chance of getting any grants for advanced instruction is to get them from the Science and Art Department, and the Science and Art Department has until very recently only paid grants for Science and Art subjects. That is the reason why in all these higher grade elementary schools, such as you will find at Liverpool, Manchester, and Sheffield, the whole tendency has been to carry out science and manual work in the advanced classes, rather than to carry forward the general education of the children on the same lines as had been adopted in the earlier stages.

6572. Is not that partly due to the fact that no other provision is made for advanced manual and technical work in the country?—Yes.

6573. Or at least very little provision is otherwise made?—No doubt; but up to the seventh standard the education of the children goes on in all the various departments of learning *pari passu*, language, geography, history, and all the rest, but at the seventh standard they cease to have the power to claim the grant for general instruction, and they find that the annual grants obtainable are the grants from the Science and Art Department: this has forced the upper classes in a special direction, a technical and scientific direction.

6574. Do you consider that an advantage or a disadvantage?—It has its disadvantages because it gives a less complete course of advanced instruction than one would like to have. If a boy can stay at school two years beyond fourteen and has passed the seventh standard, the best thing for him is to carry on his general education, including the scientific work, and not to specialise the scientific work merely because that is the only way in which grants are to be obtained.

6575. Would you agree with me in saying that there is a want in England, as there is in Ireland, of a kind of education somewhat different from the present secondary education, having a more industrial and a more commercial character, but combining literary education as well?—Yes.

6576. Is there a want of that kind at present in England?—Yes. I think they would fulfil a very important purpose. What in France are called *écoles primaires supérieures*, schools in which boys are retained to fifteen or sixteen, carry on their general instruction in science, but which form no part of the organized system of secondary education leading up to the university.

6577. But while waiting for such schools in this country, you think it an advantage that the London School Board carries on these higher standards for the present, and receives grants in aid from the Department?—Yes, and I hope they will do so more than they have done, because towns like Sheffield, Birmingham, and Liverpool are ahead of the London School Board in that respect.

6578. Captain SHAW.—There is a question on that: can they get grants in specific subjects in ex-seventh standard?—I don't know what the latest rule is on that point. It has been modified since my time.

6579. I think it is the case that they do earn grants in specific subjects from the Education Department?—I am afraid I must refer you to the Code itself, but certainly in my time no grants could be had for specific subjects beyond the seventh standard.

6580. Professor FITZGERALD.—I should like to ask Sir Joshua whether he could give us any advice as to how we could introduce these practical subjects of instruction into Ireland. There is great difficulty in training our teachers that are already in existence. How far should we require teachers to become trained before they teach drawing, for instance?—The number of your teachers who could go through a new course of teaching is probably small.

6581. And it would be very slow besides?—And it will be a slow process, but in England we began as far as the kindergarten is concerned by not insisting on a particular kind of training. We began by setting forth the thing we wanted to have done and saying it should be encouraged, and dealing gently with acting teachers who were not quite prepared; but at the same time insisting on it in the training colleges. But for the sake of all those who could not go to training colleges again, who were already at work, all that was done was to prescribe the work we wanted to have done and let the teachers find out, as indeed they did, very much to their credit find out, how to meet these requirements.

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6582. As soon as they were able to teach satisfactorily in the schools you gave them grants for it; you allowed a teacher to teach without any special certificate?—Yes.

6583. Were there organizers appointed by the Central Department to encourage this amongst the teachers?—No; the inspectors had instructions in estimating the infant school, for instance, because we began there, to have regard to the efficiency of the exercises and instruction in that department, and in making their report they had to say how far that kind of work was well done.

6584. And that might influence the grant?—Yes, it might influence the grant, but we had to deal very carefully at first and not to be too exacting in our interpretation of it.

6585. CHAIRMAN.—I think that in the beginning you wisely made your arrangements a little elastic?—At first.

6586. Mr. REDINGTON.—Do you say that these kindergarten teachers are not required to take out a certificate of their ability to teach?—No; they never were required to have a special certificate for the teaching of that subject.

6587. But yet in order to teach any other subject they must get a certificate?—The certificate is not specially for special subjects, it is a general certificate of their competency.

6588. Must they not pass in a minimum number of subjects when leaving the training college?—That is a departmental arrangement. We never publish the exact conditions under which we should pluck a student. We did not say those subjects were indispensable and that failure in one prevented their getting a certificate altogether. The award of the certificate is founded upon the total result of the certificate examination, which, of course, includes many other things, and it is partly founded upon the practical performance of the teacher in the presence of the inspector.

6589. Mr. STRUTHERS.—As a matter of fact a certificated teacher might teach French in the school though she may have failed to obtain marks for French in the training college?—Oh, yes; and you would not be informed from the training college whether she failed in French.

6590. Mr. REDINGTON.—Do you mean that a teacher could teach French without any evidence that she knows much about the language at all?—Probably that would be discovered when her class was examined, but we have never been accustomed to give a certificate of competency to teach French as such. We give a certificate of competence to teach and to have a school, and then the Department issues its scheme of instruction, and all those who are qualified to teach are presumably able to take classes in any of these subjects, and if they teach badly that is discovered at the examination.

6591. If French did not enter into the curriculum of the training colleges, and was taken up afterwards as a specific subject, would it not be desirable to have some security that the teacher was teaching French on the proper lines?—I am not so sure of that.

6592. Mr. STRUTHERS.—They might acquire a knowledge of French subsequently.

Mr. REDINGTON.—She could pass an examination subsequently.

Captain SHAW.—She might be teaching in the morning what she learned the evening before.

CHAIRMAN.—Whenever this topic turns up I always feel called upon to point out that in Ireland many of our most competent school teachers have no certificates—I speak of the Convent schools in connection with our Irish National system of education.

6593. Professor FITZGERALD.—You would advise our adopting a somewhat similar plan in Ireland to that which was adopted in England?—What plan?

6594. The method you adopted for introducing drawing and kindergarten into the schools; you would advise us to adopt a somewhat similar plan in Ireland, as a result of your experience?—Yes, but in drawing there is a special certificate; that is the one subject in which the Government recognizes that a special certificate is necessary for a teacher.

6595. But it is not required at present; that special certificate is not demanded at present?—But it is so much valued that school managers everywhere ask their teachers, "Have you got a drawing certificate," but they cannot ask them in like manner, "Have you got a kindergarten certificate," because the Government does not issue one.

6596. What I wanted to get at was what would be your advice to us as the result of your experience in the introduction of these subjects into English schools. Would you advise us to do the same as you did?—I venture to advise that you should first see clearly what you would like to have done in the schools. Give the teachers fair notice of it, encourage it in the training colleges and in your pupil teachers, but for the rest trust to time and a little patience to bring the present masters and mistresses up to your requirements, but don't rely on special certificates in special subjects. I attach little value to them.

6597. Do you think it would be well for us to send round organizers and teachers to help the teachers in learning the subject?—That would be a very helpful thing. We have never done it in England. You know better the character of your teachers, of course, than I do.

6599. CHAIRMAN.—Suppose that French was taught in a manner that would lead to the result, that when a pupil who had not only passed, but had gained high honour marks in French, was asked how he said "Good morning" in French, answered "b, o, n, j, o, u, r," and was quite unable to pronounce the words, would you say that the system under which such a thing could occur was a satisfactory one?—I should think a very unsatisfactory method.

CHAIRMAN.—I am sorry to have to say that this is the method in encouragement of which vast sums of public money are annually expended by the Intermediate Education Board in Ireland.

6600. Judge SHAW.—Is not that the way we were all taught Greek?—Yes, but we were taught Greek for one purpose, and modern French is taught for another purpose. I think a literary knowledge of French, even if you cannot pronounce it, is of considerable value.

6601. Is it not conceivable that a man might have a very fair acquaintance with German literature without being able to speak a sentence of German?—Yes.

CHAIRMAN.—For my part, I cannot but think it a misuse of public money to have it paid to people for teaching French, or German, or any other language, to pupils who, after all the teaching, cannot even read a word of the language out of a book.

6602. Professor FITZGERALD.—In training science teachers, do you not think that it would be desirable for them to have practising schools in which they would see classes taught and model lessons given, as much as in other subjects of education?—Yes, that is very desirable. Your training colleges ought to have model lessons in science as well as in other subjects.

6603. In introducing drawing ought we to introduce drawing to scale as well as drawing from freehand?—Certainly. I think unless accurate measurement is insisted on from the very first drawing is of very small educational value.

6604. We have heard two or three times about modelling in clay for children as elementary education in the first three classes. Do you think it is very valuable—it is a very dirty occupation?—It is dirty; making mud pies is always very attractive to children, but its educational value entirely depends on its being made an intellectual discipline as well as a discipline for the hands. I think careful measurement and the modelling of that which is first drawn, and indeed the identification of the modelling with geometry and drawing seem to me to make up together a very useful form of exercise. It is very interesting to children, and it appeals to the kind of faculty which your other school exercises don't bring out. It is very important that every scholar should have scope for different kinds of aptitude and character, as we are too apt, I think, to have all our plans modelled uniformly for all children alike, and every additional occupation gives a new chance to children who might otherwise find nothing in the school that was interesting to them.

6605. And do you not think then also that it is desirable that the teachers of public schools should have freedom to choose the things that they feel interested in?—Yes; every teacher ought to have scope enough to give effect to his own special tastes and aptitudes; you have in Ireland, I hope, optional as well as compulsory subjects.

CHAIRMAN.—In Ireland, I am afraid, there is not much room left, the compulsory subjects are so numerous.

6606. Professor FITZGERALD.—Have you seen anything of the commercial schools in Belgium?—I have seen some of them, but not many.

6607. Is that a possible direction in which primary education might run in towns, in the direction of a commercial education, other than merely arithmetic I mean?—Whether it should take the form of book-keeping. I doubt very much if book-keeping is much value to merchants. I think they care most about intelligent knowledge of arithmetic and good writing and good mental habits then about any particular system of book-keeping. Systems of book-keeping differ so much in commercial houses. It is a subject that looks so very practical at first sight that people are beguiled into thinking there is more educational value in it than there is.

6608. Monsignor MOLLOY.—If a boy learns book-keeping in school he learns one particular system, and when he goes into a commercial house he may find that the system he has learned is not the system in use there?—He should know enough of arithmetic to make up a good bill and balance sheet, and then any merchant can put him up to the way of his own office.

6609. Professor FITZGERALD.—Would it not be well that he should know what a bill and a balance sheet were?—Yes.

6610. Mr. STRUTHERS.—Take shorthand and modern languages?—Shorthand is a thing that might very well be introduced as an optional subject in the highest classes, but I doubt if it forms a legitimate part of the ordinary instruction of a school. It has so obvious a commercial value that the proper time to learn it is after the general school work is completed, I think. I understood Professor Fitzgerald to be speaking of special commercial schools.

6611. Professor FITZGERALD.—Whether there was a commercial aspect that might be developed in the higher classes of our primary schools. It has been worked out in Brussels, and whether there was anything which would lead up to that in the same sort of way as these manual training things may lead up, and be made educationally leading up towards ordinary education for a skilled artizan?—I have not had experience enough of purely commercial schools to have an opinion which is worth offering to the Commission.

6612. You think that the method in which education is carried out is more important in general than the subjects which are used in the methods?—Yes.

6613. And that the subjects of education might be chosen with reference to the taste of the teacher and the subsequent life of the children?—Yes. You are speaking now of the higher class of elementary school.

6614. Yes; there should be elasticity enough to give scope to special aptitudes on the part of the teacher or special local wants on the part of the neighbourhood or children, and in every case attention must be paid to the educational aspect of the work?—Yes, and I think the general intelligence of the children is of far more importance than the specific application of that intelligence to the mode by which they get their living.

6615. Do you not think that almost any subject of education can be taught intelligently?—Yes, that depends very much on the teacher, but all subjects have not the same educative value.

6616. Mr. STRUTHERS.—There was a great deal of educational value in the way in which Fagin trained Oliver Twist to steal handkerchiefs?—No doubt.

6617. Professor FITZGERALD.—To what extent is it desirable for us to encourage more the art side of education, the designing and art side of our education?—That is most important. I believe the modern requirement of our own Education Department that drawing should be introduced into every boys' school is a perfectly right one.

6618. And you think drawing ought to have an artistic and designing side?—It may develop into that afterwards. But first of all, to be able to draw with accuracy and observe carefully seems to be a necessary part of everybody's mental discipline; the application to what is called art is, of course, a later matter.

6619. But drawing to scale, ordinary engineer's drawings, hardly cultivate any æsthetic sense?—No, but it cultivates the habit of accuracy, and exact measurement, and a great many very valuable qualities.

6620. I want to know to what extent you think it desirable that in elementary schools the æsthetic side of drawing should be cultivated; you think it desirable?—Very desirable.

6621. You think it can be cultivated in children?—Yes, to a great extent, the sense of beauty; and one way of cultivating that is to take care that the children are surrounded with objects of good taste and that no crude or violent colours should be seen in the ornamentation of the school or the pictures that surround the pupils. There is a good deal to be done by the mere externals of the school.

6622. But you think that that faculty in children is capable of cultivation, and that we should try to cultivate it?—Yes.

6623. There are some things that don't come on until so late in life that it is not worth while to try and cultivate them very much in elementary schools. I did not know to what extent the artistic appreciation could be cultivated in children?—In the American schools they are introducing a great many exercises in colouring. Then of course there is room for choice and inventiveness in the scholar, and it is said to have a very excellent influence on the taste.

6624. Mr. STRUTHERS.—You refer to the Prang system?—Yes.

6625. Rev. Dr. WILSON.—Is instruction in needlework compulsory in all girls' schools?—Absolutely.

6626. Have you any fixed standard at which you introduce it, or do you carry it on through all the standards?—The Code expressly prescribes a graduated series of exercises in needlework and knitting from the infant school up to the sixth standard, and also prescribes the needlework required from female pupil teachers during the whole of the four years of their apprenticeship. You will find that given in great detail in the Code and the Instructions.

6627. You don't require more time to be spent at that than say, two and a half or three hours a week?—I believe with good teaching all you want can be attained in that way. There are many schools which profess to give say, an hour a day; well that is a very wasteful plan, because the time spent in getting ready and in putting things away on a dull and dark afternoon is such that the whole afternoon is swallowed up by it. It is a better economy of time to give either one good afternoon a week, or even one morning, or else two periods of not more than two hours each where for any reason it is necessary to accentuate the importance of the subject; but what I dread and have so often seen mischievous results from is the devotion of an hour or two on every day to it. I know it encroaches on other work, and makes too great an inroad upon the very little time available for the intellectual cultivation of young girls.

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6628. Mr. REDINGTON.—Would not two and a half hours devoted continuously to needlework be very wearying to a child?—I think not.

6629. Mr. STRUTHERS.—It has rather a soothing effect?—Very soothing: doing needlework may co-exist with complete mental stagnation.

6630. Professor FITZGERALD.—In work classes amongst ladies they very often get someone to read out to them; would it not be well to have the teacher to read out to the girls?—I am afraid that would make the actual instruction and guidance of the children rather more difficult. You want a teacher to be moving about among them and pointing out their faults.

6631. Mr. MOLLOY.—I think you have not touched on the subject of school inspection. Would you favour us with your views on the present system of inspection, mere inspection of the schools alone?—Well, a little while ago there was no other test of a school, except that of the individual examination of the pupils, and then from Mr. Lowe's time for a long while the grant was measured entirely by the results of individual examinations. That fact led no doubt to a rather mechanical kind of teaching, as all purely mechanical modes of inspection must; it led the teachers too to the adoption of those devices by which they thought the maximum number of passes could be got; and it led *pro tanto* to some discouragement of general intelligence in the school: the consequence was that the system of payment by results became very properly discredited. But it is very easy to go too far the other way. Individual examination was felt by the teachers to be a great grievance when it was the mode of assessing the grant, but individual examination for its own sake and for the children's sake is not a grievance but a privilege. It is the only real safeguard for accurate teaching, and it is the only way in my opinion to avoid slovenly teaching and slovenly inspection. The objections to payment by results were very grave and very real, but the objections to individual examination have unfortunately been mixed up with the idea of payment by results. But I don't know any other examination in the long run that is effectual either in schools or universities except individual examination. I am sure if I had a boy at a public school, and I wanted to know how he got on, I should not care to have once a year the information that he belonged to a class which had satisfied the inspector; I should want to know how he passed, and that is what under the old system we were always able to tell the parents. There was a tabulated schedule which was left with the school, and the contents of which were communicated to the parents, and it was a great part of the politics of a poor man's home to inquire how John and Mary had passed, and whether they had got through the fourth standard or not. This had a very valuable influence upon the home and the parents, and I think that it was a distinct loss when that habit of recording the passes of the scholars was entirely given up. It was given up because it was associated with a bad method of paying the grant, but as far as its educational use was concerned I have never ceased to regret that the individual examination has been so much discouraged, and I don't think that in the long run, schools will be so well estimated by the mere general impression even of the most intelligent inspector as they were when as part of his report he recorded the results of individual examinations. I think you want individual examination as a part of the data on which your general estimate is founded, not the only part, collective examination and questioning the classes and hearing the teaching are all

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in their way most indispensable factors of good inspection, but I should be sorry to see them exclude the individual examination of pupils, not necessarily of every pupil, but of a sufficient number to secure accuracy, and to give you a trustworthy basis for your final judgment.

6632. Captain SHAW.—Do you consider children of all ages should be subjected to examination by an outsider, or is it not sufficient for the teacher to hold that examination?—If it is sufficient for the teacher to examine and form his own estimate, you don't want inspection at all.

6633. What I mean is, an outsider comes in and examines children ranging from seven to twelve; do you think all children of those ages do themselves justice when you assess the merit of each individual child by an examination by an outsider?—Of course there are necessary failures in human judgment, in examiners at the universities, and examiners everywhere, but if an inspector understands his business, and knows how to encourage children to do their best, he may form a very accurate estimate of the goodness of the school by individual examination.

6634. But would it not be equally well tested by only examining the upper standards and having some form of leaving examination, see the result of the whole teaching in the school, and let the teacher be responsible in the meantime?—There is a good deal in that, but we have no leaving examination. I wish we had. If we had, it would go a long way to reconcile one to the absence of individual examination in the lower standards, but individual examination would be absolutely necessary at the leaving examination, and if you gave leaving certificates, as I wish we did, the necessity for an annual individual examination would be very greatly diminished.

6635. You would think that on the whole a preferable plan?—Well, I think that for every year an inspector ought to have it in his power to examine individual children, as many or as few as he thought desirable.

6636. It is not necessary he should examine every child?—Not necessary. But recording the result in every case checked a great deal of negligence and brought up a great many children to a much better standard than they would otherwise have had attained. I think, nevertheless, the evils of the system proved to be great enough to justify its being given given up.

6637. Monsignor MOLLOY.—What would you say to a system in which the inspector would examine into the methods of teaching and carry out a certain amount of individual examination of pupils, but not of all the pupils, while the teacher would hold periodic examinations of every pupil in each class of the school?—I believe that is done in every good school.

6638. If you had those two combined, would you not then have a sufficient guarantee to the State that the teaching was efficient and satisfactory, and the master could report to the parents as to the progress of the pupils?—Yes, when I spoke of regretting the loss of that tabulated schedule which furnished the parent with a record of his child's success, I don't mean that that is a record that ought to be produced by the Government; when it was produced by the Government it had its value and it was greatly valued by parents, but it would be quite sufficient for that purpose if a teacher made his own report, an individual report, to the parents. Nevertheless if an inspector on behalf of the State wants to assure himself of the efficiency of a school, I do not think it enough that he should take a general view of the whole school and rely upon his general impression and listen to the teaching; I think he ought to have more of individual examination than is now required in the English schools.

6639. Professor FITZGERALD.—Do you not think there is a certain amount of objection to having pupils prepared for a special examination at a definite time of the year by an inspector; would it not be well that he should carry out that examination of the teaching of the pupils from year to year during the year, that it should not be a specially prepared for examination. When a teacher is preparing for another person's examination he is always liable to try to produce the appearance amongst the children of being well instructed, while if he is preparing the children for his own examination he has no temptation to produce the appearance of education or to try and hoodwink the examiner?—*Witness:* If he is trying to produce the appearance of knowledge without the reality, is not that the very thing the inspector has to detect?

6640. Matthew Arnold has said, and I think it is quite true from my own experience both as an examiner and a teacher, that a teacher can always outwit an examiner if he has got a little practice?—Well, I am an old examiner and therefore don't like to admit it.

6641. Captain SHAW.—Having to prepare children for set examinations limits the power of the teacher in choosing subjects to a certain extent; I mean that it makes the whole thing more mechanical?—I think every day's work in the year is a preparation for examination in that sense; if your examination is only properly fitted to the curriculum of the school you cannot say that he is specially preparing for the examination; the whole school life is preparing for it.

6642. Professor FITZGERALD.—As a matter of fact is that the way in which teachers do prepare pupils for set examinations; don't we know that when teachers are preparing pupils for set examinations they grind them up for the last month of the year and pack as much information into them as they can, and neglect pupils for other parts of the year?—I am sorry to hear it; if a teacher tries to pack into one month the work that ought to have been spread over twelve, that shows he does not understand his business.

6643. Captain SHAW.—Do not set examinations more encourage the filling up of the mind with facts or something that can readily be produced again to the examiner rather than an intellectual training?—That assumes you have got a mechanical examiner who is only looking for dry facts and cannot test intelligence. Good inspection ought to correspond to good teaching, and to encourage it and recognise it in whatever form it is taken. I cannot accept the theory that what is wanted at an examination is a thing that either ought not to be wanted or is not wanted all the year round.

6644. In practice it is found you get by these examinations what is not wanted?—I am sorry to hear it.

6645. Mr. STRUTHERS.—Does not the supposed oppressive effect of the examination depend on having a cut and dried curriculum beforehand to prepare for, not on the examination itself?—Suppose the examiner examines on the work the children have done at the time he comes; he sees the curriculum in a certain subject for that year up to that time, and he examines on that curriculum and on the teacher's lines; that does not hamper the teaching; that is the way in which our examinations are conducted.

6646. I am afraid that is not the impression of the general public?—Then the general public is ill-informed. Of course reading, writing, and arithmetic are things about which there can be no mistake as to what your standard should be, but if you take geography or English, in the first place there are alternative courses provided in the Code; and in the next place every inspector when he goes to examine, say, a class in geography, says, "What has been your line? Let us see your programme. I shall only examine on what you profess to have done."

6647. Professor FITZGERALD.—In Ireland the pupils are never expected to read until they come to the very highest class of all. They are never expected to read anything except what exists in their own reading books, which they have learned off by heart during the year. Do you think that that is a satisfactory method of inspection?—Not at all.

6648. It has been impossible to get the Board of National Education in Ireland to require children to read unseen passages until the very last year of their course?—*Witness.*—May I ask how many reading books they require in a given class?

6649. One each year?—If you say—"We will only examine reading in one book," no doubt a great part of it may be learned by heart, and the test of reading may be thoroughly illusory and false; but if you require in every class, as we do in the English Code, three reading books, it is a great deal easier to teach children to read properly than it is to make them learn by heart the contents of three books, and I have no reason to suppose that the test applied to reading when it is confined to their own three books is a false or improper test.

6650. How high does that go in the English system?—I think the inspector is quite at liberty to take an unseen book—an elementary reading book up to the 4th standard—but from the 5th standard upwards the inspector may use his own test of reading.

6651. But then in England they require three reading books in each class?—Yes.

6652. Mr. REDINGTON.—Only two in the lower standards?—Two sets of reading books for 1st, 2nd, and 3rd, one of which shall be English History for each standard above the 2nd; and with these precautions I do not think at all that the learning by heart of a reading book is a common thing—a teacher will waste a great deal of effort who attempts it.

6653. Mr. STRUTHERS.—If an inspector carefully considers the teacher's line of teaching before he examines on the subject, then there can be no temptation to cram the work of the year into the last month or two?—No.

6654. So that examining in that way does not lead to any crushing of the work together in any part of the year?—No.

6655. How do you suppose it is possible for an inspector to form an opinion as to the work of the school by merely seeing the school at work on two days of the year? Do you think it is possible for him to get an accurate idea?—No, not without some individual examination to check his general impression. I want his general impression, because it will turn very much upon the life and intelligence and order of the children, but not that impression alone.

6656. You want the inspector to consider the school from every possible point of view?—Yes, I want individual examination within reasonable limits to give him part of the data on which he makes his estimate.

6657. So much individual examination as will be necessary to give him a clear idea of what is done in that school?—Sample examination would do that very well, but it should be individual.

6658. Is there not not a danger if you simply observe a teacher at work in his class on your visit to the school; is there not a danger that a showy teacher will get undue credit, and the really hard-working and efficient teacher, as tested by results—if you did test by results—might not get sufficient credit?—Yes; but is the object of inspection then to make a report on the individual qualifications of each teacher or the efficiency of the school—all depends upon that.

6659. Generally in the report some mention would be made of individual teachers, here and there?—Yes.

6660. Professor FITZGERALD.—Perhaps I might correct a statement. "The inspector may examine from any of the books in use in the standard, and in standard 3 and upwards from any book or passage suitable for the purpose which he may select." So that the unseen comes in any standard after 3?—There is no inconsistency between that and what I said.

6661. So that that statement as to reading a passage from a reading book would not necessarily mean out of a reading book in use in the school?—No, but it must be a reading book; he must not in the lower standards pull a newspaper out of his pocket and ask a boy to read a leading article.

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6662. Mr. STRUTHERS.—You consider some amount of individual examination is almost necessary for an inspector in order to form a proper estimate of the work done in the school?—He cannot check his own final estimate without some individual examination

6663. Might it not be enough if he examined the leaving standard in the school and the standard above that, leaving the junior classes to the teacher?—I have already said if you had a good leaving examination, founded on individual tests, the necessity for individual tests in the lower classes would be greatly diminished, but then I should not like to make a report on a school without some examination of the junior classes.

6664. I think you said that the supreme object of school work is to develop intelligence?—Yes, and interest children in their work. That can be done by means of a great many subjects; some teachers succeed better with one subject, and some with another, so that it is advisable to leave the teacher a very considerable variety of choice. I think our Code does that and your own Code in Scotland.

6665. It is not well to have the work too much broken up and made fragmentary?—No; it is also a good thing to have the literary work balanced by a certain amount of work of a more practical character.

6666. It is your experience that too much time on the whole has been devoted to the teaching of needlework?—Or rather to the practice of needlework; but a great part of what are called needlework lessons is not teaching at all.

6667. Then this practice of needlework can only have for its object the production of such an amount of practical skill as to make them skilled workwomen?—You will hardly have enough for that purpose in an elementary school without further training in an apprentice school or a continuation school.

6668. And this high skill is supposed to be necessary in order to qualify these girls to become heads of households?—Yes.

6669. But as a matter of fact when these girls do have houses of their own they would very largely employ sewing machines?—Very likely.

6670. Or would buy garments ready made in a shop very much cheaper than they could make them?—Yes.

6671. So that really there is no necessity for this vast amount of sewing work in schools?—No; but when you consider the mending of the number of small garments that the mother of a family has to do, it is very important that one should not discourage the needlework. I admit it is very easy to exaggerate its importance. I have said so.

6672. Did you find that visiting committees of ladies have had a great influence on the teaching of needlework and other subjects?—Yes.

6673. Has it not tended to too much importance being attached to that one subject?—Yes. Will you permit me to read what I once said on that point:—"In villages in which the influence of the Lady Bountiful or the Vicar's wife is dominant, nearly the half of every day is sometimes spent by little girls, not in being taught to sew—for that might be effectively done in one-third of the time—but in mere dawdling over needlework or in the manufacture for sale or home use. From the point of view of those who desire to make the common school effective as a preparation for the duties and responsibilities of an enlightened life, the amount of time thus spent appears to be out of proportion to the value of the results thus produced."

6674. In schools, principally in America, the attempt is made to train the children below seven purely by kindergarten exercises and not by reading, writing, or arithmetic—would there not be danger of

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these exercises becoming monotonous?—Yes, and very monotonous; but it is not common throughout the whole of the American schools.

6675. Professor FITZGERALD.—I think it is in Holland entirely?—Yes.

6676.—Mr STRUTHERS.—As a matter of fact young children of six or seven very often, I am told by teachers, take quite as much interest in their reading or writing, if taught properly, in their arithmetic even, as they do in the kindergarten operations?—To be sure; they see their elder brothers and sisters learning to read, and they want to read themselves. I know a great many cases in which the children are impatient to get rid of all the childish play—dancing around a maypole, and playing with mud pies—they are impatient to get to something which looks like business, and they like to be taught to read and write, and do little sums.

6677. So that it really is not so much in the operations themselves as the interest which the teachers succeed in exciting?—Yes.

6678. And that might apply to the teaching of literary *versus* manual occupations in the higher standards?—Yes.

6679. And although at present children seem to be more interested in the manual instruction, that may depend on the manner in which it is taught or the literary subject is taught?—Yes.

6680. Captain SHAW.—Can you get the same results from teaching literary subjects as you can from manual work?—That is a very difficult question; I believe that in the long run you get a great deal more result from those subjects which make direct appeal to the intelligence than from mere manual work.

6681. Then you don't think this manual work is any use in a school if literary work is properly taught?—I think it is of great use; but I think it is very possible to exaggerate its intellectual value.

6682. Professor FITZGERALD.—Do you think you can give an intellectual training in the method of experimental research by means of literary training, and is not that an intellectual occupation?—Anything like scientific research is practically impossible in an elementary school.

6683. Mr. STRUTHERS.—You have already said you would advocate a proper balance between literary subjects and manual occupations?—They ought to go on *pari passu*.

6684. Rev. Dr. EVANS.—Do you believe that in every English school there should be the teaching of the English language and literature?—Certainly, from the first.

6685. From the first and throughout, as long as the pupils remain there?—Yes.

6686. Do you believe that every English child ought to have a knowledge of nouns and pronouns and verbs, and to be able to decline a noun or a pronoun and conjugate a verb?—That would not be my interpretation of the teaching of English necessarily. The organised teaching of language, including certain elements of grammar, seems to be necessary as a part of every scheme of education from the infant schools right up to the university.

6687. But you would not think a child sufficiently acquainted with its own language that could not point out the distinction in tenses?—That is a point of detail; as part of any system of grammatical teaching, the difference of tenses is necessary no doubt. I would not attach much value to that by itself, but the whole system of language exercises in which the classification of nouns and verbs comes in, I should consider very important at all ages.

6688. And you think that so much of analysis at least as to be able to know the subject and the predicate in every sentence, and those other parts that modify, enlarge, and qualify the subject, and that modify, enlarge, or qualify the predicate, should be known by intelligent children?—It is very desirable; but I may be permitted to say that in regard to the teaching of English we have in the Education Code three or four alternative courses: one teacher may attach great value to what is called formal grammar, another may turn his mind to logical analysis, another may attach value to the analysis of single words, to the following of the meaning of parts of words, *e.g.* to the recognition of the fact that all words ending in "tion" were nouns, all derived from the Latin, and soforth. Another will take up purely composition exercises from the first. The alternatives are adapted to very different kinds of men and very different methods of teaching, and we say to a teacher: "If you take English, take anyone of those, and show that you have carried the scheme out consistently, and that will satisfy our requirements." That is very different from saying that everybody is to know all about tenses and numbers and persons.

6689. You would not think that anything was good for an English school that discouraged English grammar?—I should not like to discourage it; indeed I consider within the limits I have described it is indispensable.

6690. It is not therefore one of the subjects you would displace?—Certainly not. In the French and American schools the teaching of the vernacular language occupies a far more conspicuous position even in the primary schools than with us.

6691. Judge SHAW.—In introducing manual instruction into a place where it had not been introduced before, the ordinary elementary teacher would not at first be able to give the manual instruction?—No.

6692. We have seen two systems at work here, one in which the pupils are drafted off at certain hours to certain centres, where they receive the manual instruction, the other where teachers went round to the schools themselves?—Peripatetic teachers.

6693. Peripatetic teachers instead of peripatetic pupils, which of those systems is most likely to produce the best results?—I could not say, but I should say *a priori* that either is a very good system, and that the preference depends entirely on the local circumstances, such as the nearness of the schools to one another.

6694. In rural schools you could not draft pupils to a centre, but in towns you might have either system?—I am hardly prepared to say which is the best; both work extremely well if you have the right men.

6695. Does it not distract or disturb the ordinary arrangement of the school to have the pupils removed from it?—No doubt, that is one disadvantage. And there is another disadvantage in having your peripatetic teacher who comes in as an outsider and merely cares about his own subject. I should prefer that the school should have on its regular staff and taking an interest in the whole work somebody qualified to do the manual work and told off for that purpose.

6696. That involves a large school with a large staff?—It does, no doubt, but where that is possible, I prefer it to a visiting teacher who is apt to look upon his own subject out of true perspective in relation to other subjects, and to displace to a certain extent, the proper and responsible headmaster of the school.

6697. There is another system to which our attention has been called. In some cases artizans have been brought in, and trained to teach manual work, in other cases the elementary teacher has been trained, and given the manual dexterity necessary to enable him to give instruction in these manual subjects; have you any opinion as to which of these two systems is the best?—I strongly prefer the second; I have lately been at Newcastle, and seen the work there, and in London the teachers, especially the assistant teachers, who wish to have a share in this work go on Saturday mornings to a centre like the City and Guilds Institute, or to the Science College, and get lessons there on the right use of tools and on the right mode of giving manual instruction in their own schools. Then they go back to their own schools, they still take an interest in the general work, but they are able to supplement that duty by looking after the manual instruction, and that seems to be a much better arrangement than to get skilled artizans who, however skilled, are not always good teachers.

6698. Do you think it is always possible to get a skilled artizan to be able to teach at all?—It is possible, but not easy; you now and then can get a man who over and above being a skilled artizan is a person of intelligence with the power of teaching.

6699. In Ireland the large number of schools are rural schools with only one room for doing work; have you any suggestion as to the method of introducing any form of manual instruction into those schools?—It is very difficult. I should begin very modestly. I should certainly begin by drawing; that is the foundation of the whole. Get drawing introduced, that is possible in any school, in any building or organization, then let all other requirements of this kind grow as you find opportunity, and as the power and skill of your teachers grow.

6700 Is it possible, for example, to give any efficient instruction in woodwork where you have not a separate room for the purpose?—No, I would not try it.

6701. You would not advise us to try it at all?—I would not advise the use of tools in a single room where children are otherwise engaged.

6702. Is there any form of manual instruction besides drawing which would in some degree take the place of woodwork, and which could be worked on a small scale where there was only one room, and perhaps only one teacher?—I think a little designing and pattern work and fitting pieces of some material which could be made to fit together.

6703. Could card-board work?—That could be introduced without interfering with the general work in a small school.

6704. CHAIRMAN.—There is a form of wire-working, quite noiseless, which we saw in Birmingham?—I should think it quite possible.

6705. Judge SHAW.—Supposing the rural teachers, which is the fact in our schools, had received no special training in the teaching of card-board work or in any form of manual instruction, could you suggest to us any method by which the teachers might, without bringing them up to a centre, be trained to give instruction of that sort?—I think you might do something by preparing and sending out some small manual well illustrated, descriptive of a few elementary manual exercises, and let it be circulated among the teachers, and not at first be too exacting in your requirements, but say "Here is a thing we want to have done, those of you who feel you could co-operate with us and do it well——"

6706. CHAIRMAN.—As is done, I think you said, in the case of kindergarten?—We did not even put forward a manual of what we wanted.

6707. The manual you contemplate ought to comprise some explanation of the principles?—A little; as a rule I rather dread the sending out by any school authority of books to be used. I think the larger liberty you can leave to the teachers the better, but at the same time I think a simple statement of the purpose that ought to be contemplated in manual instruction, of the kind of elementary exercises in connection with drawing, which might be usefully adopted, and also showing how they were graduated, and what materials would be necessary, would be very useful in stimulating your teachers, and you would find it would develop a good deal of inventiveness.

6708. Judge SHAW.—You would propose to say to teachers: "Here is a thing we want done, and do your best," and exact no certificate of previous training whatever?—You would defeat your own purpose if you exacted such a condition.

6709. A good deal might be done by sending round a peripatetic organizer for rural schools who would go round and either collect the teachers at certain centres and give them instruction in this method, or go to schools, or do both?—Certainly; I think that would be a very good step indeed, and meanwhile at your training colleges it would be well to begin at once by having a skilled lecturer, a teacher who could put a few schoolmasters and mistresses on to the right lines, and who might open special classes for the instruction of acting teachers in the neighbourhood.

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6710. I am confining myself to the teachers we have now who have not any training?—You will get their sympathy to just the extent you show them the thing is workable, and can be made interesting. If you are too exacting, and put forth too complicated and apparently scientific a scheme, you find a great many of the teachers will say "Without special training we cannot undertake it." So I should begin very simply in the hope the thing will grow, and it will grow by the co-operation of the teachers more than by the special requirements of the central authority.

6711. Don't you think it would encourage the teachers very much to try this new system if we told them that on a fit opportunity a skilled man would come round to give them some idea as to how it was to be done?—Certainly, and in towns he might gather together a good many teachers.

6712. And even in rural districts a good many teachers might be gathered at a centre on Saturdays for instruction?—Certainly.

6713. And on the other days of the week the organizer might go round the schools and see what was being done?—As an experimental measure that would be very wise.

6714. CHAIRMAN.—I suppose you would think it of some importance to impress on the teachers that the main object of this work was not to get a certain exercise worked out, or to get certain things made by the pupils in paper, or card-board, or wire, or wood, but that there was an educational object to be kept in view?—Yes.

6715. And that this, and this alone, was the reason why the education authority wished to introduce this branch of school work?—Yes, and in connection with that there is one sentence in our Instructions to inspectors which I think bears on that: "It should be borne in mind that it is of little service to adopt the gifts and mechanical operations of the kindergarten," —and the same thing applies to the more extended kindergarten—"unless they are so used as to furnish real training in accuracy of hand and eye, in intelligence, and in obedience" And in extending the same policy up to your higher classes, it seems to me very desirable to keep the same thing in view. If you once show the teachers what you are driving at, and indicate to them what are the early steps in the work, you will get a great deal of sympathy from them.

6716. Especially if you show them, that is, those amongst them who are really fit to be teachers at all, that this is a development of the kindergarten work?—Yes, which after all is not only applicable to very little children.

6717. There is a very important matter, Sir Joshua, that we are not quite as familiar with as it is desirable we should be, especially on grounds connected with the subjects of our present inquiry,—the different stages through which the system of examination and inspection has passed in England. Am I right in saying that it began with a system of individual examination of every child in every subject?—Yes.

6718. And that the amount of the grant to the school was regulated by the answering of each child in each subject?—Yes, that was done at the time of the Royal Commission in 1862.

6719. That was Mr. Lowe's scheme?—Mr. Lowe has the credit of it, but, to do him justice, the Royal Commission recommended a still more pitiless and exacting system of examination. That Commission recommended that the teachers' salaries should in every case rise or fall according to the results of examination: but Mr. Lowe never insisted on this.

6720. I wish to state to you that that is the stage

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in which we still are in Ireland, we have the results system in that pitiless form which you describe: the grant being paid directly to the teacher, the amount of the teacher's income each year depends upon the result of the individual examination of each child; we may take it that you don't approve of that system?—No.

6721. Now, the second system that came on in England was a modification of that pitiless system?—But you know we never adopted that system of paying *teachers*; we paid the managers by it.

6722. I am aware of that. The Royal Commission, as you say, recommended it, but it was not adopted. You, in England, had the system of payment on the results of individual examination, but the State made its payment to the manager, who made his own terms with the teacher. Now, after the system of payment on the individual examination was dispensed with?—There is a good deal to be said before you come to that. The first step was that the grant depended on nothing but the number of passes in reading, writing, and arithmetic. The next step was by Mr. Forster in 1870. He and his successors introduced other subjects, what we call class subjects, so that part of the grant should be dependent upon the manner in which the classes answered in geography, grammar, and the like; that was going a distinct step beyond Mr. Lowe, because though the substantial part of the grant depended on the passes in reading, writing, and arithmetic, yet the whole grant could be greatly modified by the evidence of intelligence in other respects.

6723. Then the examination in those class subjects was not an individual examination of each child?—No, it was largely a class examination, and the inspector reported upon the manner in which the class had acquitted itself in each of these additional subjects.

6724. How could the class be examined without an examination of the individual children?—The Inspector gave a number of oral questions to the whole class.

6725. Was each child in the class examined, in the case of these class subjects, as well as in the elementary subjects of reading, writing, and arithmetic?—Not necessarily. In reading, writing, and arithmetic not only was every child examined, but there was an individual record of his pass in the schedule, but no such record was prepared in the case of the class subjects, they were reported on as a whole.

6726. Then in the case of a class subject the inspector examined just so many of the pupils as enabled him to form a judgment of the class as a class?—Yes.

6727. In the case of the class subjects there was a fixed grant and a variable grant: take an example of some one subject?—I will take geography; there were two grants, the subject was to be taught, and the grant was either 1*s*. a head if it was fair, and 2*s*. if it was good.

6728. And to that extent the amount of the grant depended upon the answering of the class as a class?—The inspector would not form his judgment as to whether a class subject was fair or good without ascertaining whether there was a reasonable number of children who could answer his questions.

6729 Mr. STRUTHERS.—In our forms we had to state at one time how many out of the class showed a reasonable knowledge of the subject?—It never was formulated quite so exactly in the English Code; you had to say whether a class in geography was fair or good, and then they got either a fair or good grant for it.

6730. CHAIRMAN.—So that, for instance, whether 25 or 26 children were good out of a class of 30, made no difference in the amount of the grant: I suppose in either of those cases it would be considered well taught?—Yes, something was left to the inspector's discretion: he might say he would not call the class good unless he got 60 per cent. of answering.

6731. But whether the answering was 60 per cent. or 80 per cent. then the full amount of the grant would be given?—Yes, in regard to class subjects, but the whole grant depended on the resultant of the two, the individual examination and the class examination. Of late years the keeping of the schedule recording individual results of examinations in the ordinary subjects has been given up.

6732. And now the whole of the inspector's duty is to report as to whether the subject has been well taught, that is, all the subjects have come to be treated as class subjects?—Yes.

6733. Then there was a variable grant for the subjects all round, a certain amount given if the subjects were taught in the school, and a certain additional amount if they were taught well?—There is a variable grant still. I should say there was an intermediate experiment, the merit grant. The Department was very conscious of the unsatisfactoriness of the individual examination as the only basis on which the grant rested, and so they said the inspector should be permitted to offer what was called a merit grant, good, fair or excellent, on his total impression of the intelligence and order, and tone of the school, and that was done expressly with a view to correct whatever there might be that was hard, or mechanical, or unfair in a judgment produced by the individual examination alone. At first teachers welcomed it very much, but afterwards the thing got misunderstood, and when the merit grant was put down as good the teacher said, "That means that the school is good, and that you are classifying our schools, and calling them by names which make comparisons between my school and neighbouring schools." And the consequence was that the merit grant, though very well intended as a means of rectifying whatever was wrong in the system of individual examination, had in time to be given up.

6734. At what stage did the merit grant come in?—Between the time when Mr. Forster had introduced the class subjects and the time when the individual examination was given up altogether: the merit grant was not introduced into the Code until 1881.

6735. Then the merit grant was dropped, and you reverted to Mr. Forster's system?—We rather reverted to the system before Mr. Lowe himself, that is to say, when there was a general report. I have not gone quite so far back as that, because there is still a report on subjects, but the grant is no longer dependent upon the exact amount of passes either in the class subjects or elementary subjects.

6736. That is the present stage?—Yes.

6737 The grant now depends on the estimate formed by the inspector of the work of the school as a whole?—Yes, but he has to report in detail upon various subjects.

6738. When you spoke a while ago of getting rid of the individual examination of individual children, did you mean to imply that it was desirable that the amount of the grant to a school should not in any way depend upon the result of the inspector's visit?—I did not say that it should not in any way depend, but it should not be measured by the number of passes.

6739. But of course you think that the amount of the grant should in some way depend on the result of the school work as ascertained by the inspector?—Certainly, on its efficiency.

6740. Do you consider that the amount of the grant should vary in this way, not in reference merely to subjects of instruction,—whether book work or manual work,—but also in reference to the discipline the order, the neatness, and, to use your own word, the tone, of the school?—All these ought to be factors, in his judgment, and all ought to have a part in making his final estimate of the school.

6741. May I ask whether you consider it an unmixed advantage to have the almost uncontrolled freedom that seems to exist at present? Do you not think the Inspector's report should go upon some more definite basis?—When you consider the varieties of human judgment and human tempers I think it is very necessary that in so serious a matter as the esti-

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state of a school's work, and one that affects so closely the prospects and position of the teacher, you should leave as little to caprice as possible. And I think the inspector's judgment will be a sounder one and a better basis for the right administration of the grant if he has a certain amount of individual examination by way of checking his own personal impressions.

6742. What would you think of a system of examination so arranged that every child in the school should be examined in some subject, but not every child in every subject?—I believe most of our inspectors do that now, even though they are not bound to do it by the terms of the Code.

6743. Personally do you consider that a useful basis?—Yes; as I have said, it is a great check on slovenly inspection and slovenly teaching.

6744. And it leaves the amount of the grant less dependent on the state of the inspector's health, the state of his temper, and perhaps even the state of the weather?—That is quite possible.

Mr. J. C. Hudson, Superintendent of Educational Hand-work to the Hornsey School Board, examined.

Mr. J. C. Hudson.

6745. Chairman.—Kindly state for the information of the Commission the position which you hold in the educational work of London?—I am the superintendent of the educational hand-work classes under the School Board for Hornsey. We take several forms of hand and eye training.

6746. Then your official position is not in connection with the London School Board?—No, the Hornsey School Board. We have somewhere about 70,000 inhabitants.

6747. How many schools?—We have five; the sixth is now building.

6749. In how many of these schools is provision made for educational hand work?—In all the schools; for all the children.

6749. In the Hornsey district, is the work done within each school, or are there centres?—The work is done within each school.

6750. You consider that the nature and aims of manual instruction are not sufficiently emphasized in the elementary schools of England?—I cannot so much speak of English schools generally as of London schools more especially. I only gather my impression from reading about other English schools and from casual visits to places like Liverpool, Manchester, Birmingham, and so on. And I think the misfortune has been that the manual instruction movement in England has been somewhat confused with a movement for increased technical instruction, and that the two have overlapped and crossed each other. I don't know whether technical instruction has benefited by the movement, but manual instruction as an educational subject in elementary schools has suffered.

6751. What do you consider that the ends and aims of manual instruction in elementary schools should be?—I should say the main aim should be purely educational, to make it a part of the formative training of the child.

6752. You look to the intellectual effect?—Yes.

6753. And also to the training of the muscles and hands—you include all that?—Certainly, but not to look at it so much from the utilitarian standpoint: the idea of making the boy a handy lad who can knock in a nail has been rather too much predominant. If the intellectual and formative idea is uppermost, the other will take care of itself.

6754. Your idea is that the education should be of such a character that it would be of use to the boy, no matter what career in life he turned to?—Exactly. Unless manual instruction is taught on lines similar to those, it would be better it was not taught at all. If the utilitarian aim is uppermost, hand-work is better left out of the school. I speak as a teacher of other subjects as well.

6755. There are many things now taught in school that have not much educational advantage?—It is not altogether the value of the subject taught as the manner of handling it.

6756. Do you think manual instruction should be optional or compulsory?—I should most certainly say let it be optional. If it is compulsory you force something upon the teachers, which they may dislike. It is an extra subject; they know little about it, and they would probably set their faces against it. If it is encouraged, and the teachers have opportunities of getting trained, let them ask for it, and it will probably go on well.

6757. You will probably get it more generally taught by treating it as an optional matter?—Decidedly.

6758. What, precisely, do you understand by manual instruction?—I think the term "manual instruction" is certainly much too narrow.

6759. We have found an interesting distinction made between hand training and manual instruction?—I should take it to mean the training of the boy to use all his powers. In my classes the boys will tell you almost at the beginning, certainly after a few lessons, that they have to use not only their hands but eyes.

6760. Hand and eye training?—Yes; and the boys will quickly tell you that they have to think very hard about their work, so it is a mental training as well.

6761. Do you think this practical work should be confined to the upper standards?—I think it is a misfortune if it is confined only to the upper standards.

6762. In your sense of the term, kindergarten work is part of the manual instruction?—Decidedly. Manual instruction is only an extension of the kindergarten idea.

6763. You think this kind of instruction should run from the lower standards right up to something more elaborate?—I don't know about more elaborate, but, perhaps, in materials, more suitable to the strength of the child.

6764. Naturally an occupation of this kind becomes more elaborate in the upper standards?—Yes, more difficult exercises.

6765. First, may I ask you do you think this work should be provided for girls as well as for boys?—Of course the girls get some provision in the direction of sewing, and in our town schools in the cookery classes, but I don't think it fills all they want. Our teachers in Hornsey are quite willing to let girls come to school for the cardboard work.

6766. You have heard Sir Joshua Fitch's evidence about needlework. Don't you think there is a special danger that the educational side of this branch of school work may be lost sight of?—It was felt very much in the school where I was first assistant some years ago. We had a mixed school, and the teachers of needlework carried the scheme to such an extent that the head master had to interfere, and modify the scheme himself very much, indeed. There is an obvious danger of that in the case of needlework, partly from its connection with industrial occupations and partly from its connection with an important branch of home work, so special precaution should be taken to keep attention fixed on the educational side of the case.

6767. But you agree that a good deal of practice in needlework is a necessary part of the educational work of the school?—Decidedly. I don't know whether you are aware that the School Board for London has just decided to introduce sewing machines into their evening classes for girls; there the actual hand work would be only employed for simpler exercises.

6768. Mr. Struthers.—Not into the day schools?—Not into the day schools at present.

6769. Chairman.—Who should teach all these

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practical branches of school work, ordinary teachers or artizans?—The question really comes to this, whether it is better to try to get the work done by school teachers or trained artizans. I think it has been found everywhere that it is much easier to give the trained teacher the requisite technical skill than to give the artizan the power of imparting knowledge and becoming a teacher.

6770. You have some knowledge of the progress of manual work in Sweden?—I have.

6771. I think in Sweden they began by employing artizans almost exclusively, if not exclusively?—Yes.

6772. They took it for granted that no one could teach a boy to work in wood unless he was a skilled carpenter, what was the result of that?—It failed entirely: now the head teacher usually takes the work in the village schools.

6773. So the result of that experiment is that the ordinary school teacher, when suitably trained, is found to make the better instructor in this branch?—Yes, and that has been found to be the case in various parts of England.

6774. There is a special danger of the artizan attaching too much importance to the industrial, as distinguished from the educational, aspect of the work?—Exactly: besides that he has not the power of imparting knowledge; he looks on the work as the important thing, and not the child he is teaching.

6775. Of course there are exceptions on both sides of the line?—Decidedly.

6776. But as a general rule you consider that school teachers rather than artizans should be employed?—In nearly every case.

6777. Under what conditions should this work be attempted in the school?—I should say that unless there is a suitable room, suitable apparatus, and a suitable teacher, it is very much better not to attempt it at all.

6778. Let us distinguish between the various kinds of manual work?—I am speaking now more specially of bench work.

6779. That, of course, could not be attempted unless there was a suitable room, partly on account of the want of space, and partly on account of the general disturbance of the school work?—Really, as to the noise, I think that may be exaggerated. We have in our school a building attached to the school, and I think it is a misfortune not to have the building attached to the school, otherwise the pupils look upon it as something not connected with school work: the boys go from one class-room to another class-room.

6780. Judge Shaw.—Does not that postulate a large school?—I don't think so; you will find if you visit Sweden they have it in their little village schools. A small room or something of the kind might be put up very cheaply: you need not have great elaboration.

6781. Chairman.—May the fittings be to any extent movable, so that the room could be used for other purposes?—The benches could easily be placed away, but I should advise not to use benches that fold up or are packed away.

6782. So much for the manual work of the higher standards. Now take the lower grade work, suitable for the first standard, immediately after the kindergarten?—In the first standard the work done in the kindergarten should be continued; the paperfolding and cutting they learn in the kindergarten should be carried on with coloured paper and the making of mosaic patterns, but leave to the ingenuity of the children to produce those by methods the children can very easily find out for themselves. One of the best means, even better than the paper work, is the brush-work, which Mr. Cooke will speak to you about presently.

6783. What do you think of having all this elementary manual work done in connection with the blackboard, that is, having children taught to work it all out from diagrams?—I have seen that done in Birmingham, and I think it becomes an exceedingly difficult task for the child: there again it is the utilitarian idea that is uppermost in the mind of the teacher. Mr. Bevis wishes to train those children to recognise plans, elevations, and so on, but he takes it before the time.

6784. But, apart from its difficulty, the work in itself is good, good as educational work?—It is very good work, but it is a very severe task on the children.

6785. It is work that can be done in a school where it is not possible to have the special apparatus necessary for bench work, I mean working in wood with ordinary tools?—I don't think it is impossible to have the special apparatus for this kind of work if you have a blackboard and chalk; the children can have some brown paper and more chalk.

6786. Do you not think that even these elementary forms can be so developed as to be suitable for boys and girls up to fourth standard?—Most certainly, if you have not the means of doing something better. It is better than nothing at all.

6787. It is really a useful thing?—Decidedly, the inlaying of the paper is a capital training, it develops originality.

6788. How can teachers be prepared for this sort of work?—Where, as in Ireland, you have not teachers trained already, I think you should have centres. I agree with every word Sir Joshua Fitch said on that.

6789. You agree that intelligent teachers would take it up?—Most certainly, very readily, and those are the teachers you want.

6790. And a good deal can be done through the training colleges?—Yes.

6791. Judge Shaw.—You would not compel any teacher?—I should not, except in the training colleges. I would compel it there.

6792. You would not ask the teacher to take out a certificate?—I think it would be a pity if there was not a guarantee that the teacher had gone through a proper course. Directly teachers do a little of this work, a smattering, they at once conclude that they have got the whole of the principles; they are very enthusiastic, and are very honest, but they do harm.

6793. Chairman.—About the cost of introducing a practical system of manual instruction, we have seen there are two sections or divisions of this branch of school work: first take the simplest form?—The cost of introducing some such scheme for paper or colour work, the cost of maintenance need not be more than 3*d*. to 4*d*. per head for each child for a year.

6794. And the cost of starting it?—About 1*s*. per head, that is for these elementary forms; but for the woodwork it would come to considerably more—there is the great initial difficulty.

6795. What would it come to? There are many places in Ireland where it is quite possible to introduce the simpler form, and quite impossible to introduce the higher; but there are places where it would be quite possible to introduce it in its highest form?—Well, disregarding the room, the cost of which would differ in different localities, the cost of fitting up a room for bench work, and providing it with tools and material, would be about £2 per scholar—that is to say, £2 for a number of those using the room.

6796. Let us say the room could be used by 20?—It could be used by 20 three times a day.

6797. So it could be used by 200 in a week?—Yes.

6798. And then, for an outlay of £40, that would be available for several years?—Yes.

6799. You consider there is a close connection between manual instruction and the kindergarten work?—Most certainly; I think that unless that connection is kept up, the kindergarten work will be, to a large extent, thrown away; the hand and eye training is merely a continuation of kindergarten, what Froebel would have done if he had lived.

6800. But there is a connection also between kindergarten and the more advanced manual instruction?—Yes, the same principles should go through all education.

6801. Have you any exercises to cultivate the

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power of expression in children, getting them to describe what they see or do?—That is one of our difficulties as teachers of manual instruction. Lessons are given on the growth, nature, and properties of wood, and on the construction of the tools and so on. We attempt to make all those lessons as far as possible intuitional. The child is asked—"What do you see there?" and "From what you see what do you gather?" We have the greatest difficulty in getting those children to see and then to put into words what they see.

6802. Monsignor **Molloy**.—Carlyle says that the two rarest faculties possessed by man are the power of seeing what they look at and the power of expressing what they think?—Quite so.

6803. **Chairman**.—And yet they are two faculties of the greatest importance to cultivate?—Yes. We endeavour to cultivate it as far as possible in our boys, not to make it mere mechanical bench work all the time, but that the boy should have an intelligent grip of what he is doing, and know the why and wherefore.

6804. Do you get them to write down descriptions?—Occasionally; we should do more of that if we had time. we have only two hours a week, and we have to satisfy the requirements of the Department.

6805. Might not that be done in the other school?—That is one of the drawbacks of having peripatetic teachers. If it is possible, let the class teacher or the teacher of the school have charge of the manual instruction; it is so difficult for a visiting teacher to get the other teachers to co-ordinate the work and work with him. There is a question of some importance whether this work should be in the nature of doing merely formal exercises; in my memorandum of evidence I said "Yes and no." I mean it is very much better if the teacher can put forward a scheme of work where the exercises are expressed on completed objects; in the doing of the work the boy gets the exercises; he has not to make the object apart from the exercise. It is a very difficult principle to carry out in practice, but it does not detract from the value of it

6806. It has been suggested that the objects to be made should be such as would be of use in connection with other branches of school work?—An attempt has been made in Liverpool and at other schools where elementary physics and chemistry and elementary mechanics are taught, to get the boys to make models illustrating these elementary science lessons, but practical work in the construction of these models is rather above the ability of a child to make the model with sufficient accuracy, then the teacher comes in and adds what is wanted; I think that is a great misfortune.

6807. You think the work should be done exclusively by the child?—Decidedly.

6808. Gradation of the exercises also is an important point?—That follows, very careful gradation.

6809. If they make the objects that are required for the purpose of instruction, it may not be possible to fit these into a scheme of gradation?—It is impossible, unless it be with boys who have gone through a regular course and stay on at school.

6810. Captain **Shaw**.—Is it not a fact that these models in Liverpool are only made by boys who have gone through the two years?—That may be so; I should endorse it most certainly if they have the required skill.

6811. **Chairman**.—It gives them a double interest in the work?—Decidedly.

6812. Professor **Fitzgerald**.—And so far as the models made were such as the children could make, you would not object to their doing them?—No; as far as it could be fitted into the graduated scheme. Once that kind of thing comes in, the tendency is to make the model. We want something to illustrate a subject, and it has to be made in the "school workshop"; I think that an unfortunate term.

6813. **Chairman**.—You don't think that people should blindly follow the Swedish Sloyd system?—It has led to Sloyd getting into disrepute.

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6814. Someone said the other day that to work in that way is really not working on the Sloyd principle at all?—It is not.

6815. The fundamental principle of Sloyd is its educational character, and that necessarily implies a certain amount of modification according to circumstances?—That is why I insist on the importance of the training of the teacher. A teacher who only gets a smattering gives this particular list of models and cannot form a scheme of his own.

6816. What system of inspection is there for the manual work; you do not inspect?—No; I carefully teach and organize the school. The whole of the inspection is conducted by the Science and Art Department, not by the Education Department, which, I think, with due deference to Captain Shaw, is a misfortune. I am certain if the work had been under the Education Department we should have got a much better system of educational handwork in our schools, simply because the Science and Art Department at first sent men who knew very little about the nature of the children or the work they were inspecting.

6817. And naturally they did not aim at fitting it in with any general educational scheme?—No; much of it was perfunctory.

6818. Judge **Shaw**.—You said you would make it optional for the teachers to take up this subject—would you make it compulsory on the pupils if the teachers took it up?—If the teacher wished to introduce it into his school there would be no difficulty arising on this head; the difficulty would be to know whom to exclude. The anxiety of the boys to take it up is very great; of course boys love activity, and here is an outlet for that.

6819. There are some teachers who, as we say, have got no hands?—Have not had training.

6820. But some men are naturally not handy. Can a man who has not got manual dexterity himself be fit to teach?—I should say not. It is very necessary that the teacher should be dexterous, because the boys would soon find him out if he were not.

6821. So if a man cannot learn to do things himself, no matter what theoretical knowledge he may have, he would probably turn out a great failure, and the boys would soon get disgusted with his work, and the teacher would lose their respect?—I don't think any teacher could conceal his ignorance It would become necessary for him to exhibit to the boys certain processes, and if he could not do those processes well the boys would find him out at once.

6822. Does that apply to drawing?—I think it does. I would rather Mr. Cooke answered that question than myself.

6823. A man can teach writing who cannot write very well himself?—He has not to exhibit processes as a teacher has in a manual school.

6824. **Chairman**.—Some voice trainers of great professional eminence as voice trainers are very poor singers?—Yes; but I don't think that could be the case on the line of teaching that I have adopted myself. I have known excellent men with regard to theory, and men heartily in sympathy with the work, who failed completely in the management of classes, solely because of their want of manual dexterity; it becomes so evident in the work, and the boys get a contempt both for the work and the teacher.

6825. Mr. **Struthers**.—Why does not a pupil despise the teacher who writes badly?—The teacher gives verbal guidance there.

6826. Professor **Fitzgerald**.—Don't you think that they do very often have a certain amount of contempt?—I should say they certainly would if they saw the teacher's writing was bad.

6827. **Chairman**.—In this manual work a teacher must do a good deal by way of illustration?—Yes.

6828. Judge **Shaw**.—Then it would be utterly impossible to make a teacher, no matter what training he had, if he had not hands?—I should not say it would

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be impossible. If a man were a man of genius he might overtake that difficulty by his skill in teaching.

6829. You might have an admirable teacher for literary subjects with a great gift for teaching literature who would have no gift at all for taking up a tool and working with it; would it be possible to make that man a teacher of manual work?—I think not. At the same time any teacher who is anxious to teach the subject can get sufficient dexterity, I think.

6830. Chairman.—I suppose there are few persons of sufficient intelligence to be teachers who could not teach the simpler forms of manual instruction, such as paper-folding and card-cutting?—Yes; there the need for exhibiting the processes is not so necessary; the children evolve the forms themselves.

6831. You might possibly find out whether a teacher was intelligent enough to be trusted with the management of a school at all if he failed in this?—Yes.

6832. Mr. Struthers.—You have seen the small schools in Sweden?—Yes.

6833. They must be analogous to the small schools in Ireland, and so form a useful guide to the introduction of woodwork in Ireland?—I think so.

6834. Is the Sloyd instruction given after school hours?—I think it is; undoubtedly it could be given outside school hours.

6835. Do you know that in Stockholm instruction in manual work is optional on the part of the pupils?—I think so; it is so all through Sweden; nearly every village school has its Sloyd room.

Mr. Ebenezer Cooke.

Mr. Ebenezer Cooke examined.

6836. Chairman.—What is your position in the educational world of London?—A very small one; I have no official position whatever, or I should not be here.

6837. But you take a great interest, I believe, especially in one branch of our inquiry, the subject of drawing?—I take a considerable interest in all education; science and drawing are the two subjects I have been working at most.

6838. Drawing is a matter to which we attach very great importance. We are aware that there are two syllabuses of drawing sanctioned by the Science and Art Department, one is known as the alternative syllabus, and you inform us that you had something to do with the suggestion of it?—I drew it up entirely, with the exception of a few figures which were put in by someone after it left my hands.

6839. You consider it is useful to have a certain amount of option allowed to the schools as regards the course of instruction in drawing?—I think so, certainly.

6840. And in that way the alternative system is a useful feature; but has it any special advantage apart from the fact that it gives an alternative—what do you consider the special advantage of this syllabus to be as indicating a special line of instruction in drawing?—First of all it is more adapted to the child's nature; it begins with activity, which a child enjoys very much; it begins with the child's scribble, with the line that the child makes most easily from the structure of its arm; it is not a straight line, but a line of graduated curvature; if that line is brought round to its starting point it will make an ellipse or some oval. So that the form it begins with is the form most natural to the child's arm and action, which the child enjoys most; and again, it is the form which, so far as I can discover, underlies the organic world. At the present time we have strictly no elementary drawing. What we call elementary drawing has no elements except in an imperfect way. We have the elements of inorganic forms, the elements of all crystals given us, in a straight line, and we have the circle; but there is no elementary line given us, no elementary form by which we can draw a single living object. I have investigated the subject for many years, and I have come to the conclusion that the oval is the underlying form in living things. If we take Goethe's generalization, the plant is only a modification of an ideal leaf. We begin with this form which is most suited to the child, most pleasant to the child, and which underlies the thing that the child most likes to draw. We break the ellipse up and analyse it, and we get the quadrant of the ellipse; thus we get a third line; we can now add to the straight line and the arc, this curve. And with these three lines, which stand in the relation of the three primary colours, we can get elementary drawing; we get an alphabet, and are able to spell forms and analyse them therefore I think the new syllabus has an advantage in at least three ways. I look upon it as a most important thing that the child shall learn to see and do; the child endeavours by its first rough scribbling to express itself. What we have to try to do is to get the child to express itself, and therefore copies are not the best things to give it. The child should be induced to express its own thought about the thing it sees; that should not be limited to drawing, but should apply to every lesson; and if we can get elementary drawing into a complete state, drawing may be a second means of expressing thought that might be applied to every lesson right through the whole school.

6841. I suppose it would not be possible for us in Ireland to introduce this alternative scheme compulsorily?—I suppose not. I do not know.

6842. The most we could do would be to allow an option, and possibly point out some of the advantages you have explained. In reference to the other subjects of our inquiry, have you given particular attention to them—woodwork?—No, I have not. We have already carried this scheme through at the Whitechapel school; one important thing is that the child makes its own designs; the child can invent its own patterns.

6843. The patterns may be very imperfect in the first instance, just as the child's first attempt in forming letters are?—Of course; but they often produce wonderful things.

6844. So that, in your view, the fact of their making these imperfect attempts does not interfere with their afterwards reaching a satisfactory grade of perfection?—No, it exercises the fundamental activity of the mind.

6845. Judge Shaw.—Was that at the Alma school?—Yes.

6846. There the children from the very first commence to work out their own designs?—Quite so: they put the elements and lines together and so compose decorative forms on a geometrical basis; then using the brush—the child is fond of colour, and we ought to encourage that—we can get designs with strokes and forms natural to the brush. What one has to do in drawing is to get a great deal of exercise so that a child can get the power of drawing.

6847. Are there many other schools in which that system is being carried out?—The syllabus is only one year old; it was not understood at first sight. I think there are only two or three other elementary schools where it is being carried out.

6848. Mr. Struthers.—Do you find that the children have a faculty of inventiveness at an early age, which disappears or degenerates later in life?—That will depend entirely on the kind of invention. If they get the peculiar faculty of illustrating figures, some children will make wonderful pictures; if that power is cultivated they produce things that surprise nearly everyone that sees them. If they drop the practice of working from imagination for a certain time it dies away. I know a girl who could draw

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nicely at thirteen or fourteen—she is now twenty-five—and says that the power is gone; that is because it has not been kept up. But the invention of patterns is merely the putting together of certain elements. I cannot see how that can be lost.

6849. Suppose you were going to start teaching designing to children, do you think it better to begin at the early age of seven or eight rather than to begin at fourteen or fifteen?—I should think so; the mind itself is always putting things in order by its own activity.

6850. More at one age than another?—No, the mind like the heart is always working.

6851. So that you might just as well begin at fourteen as at seven?—No, at fourteen people have got a little bit hardened and have not quite the same power of using all their faculties.

6852. Have you made any investigation on the point as to whether children at fourteen have lost this power of inventiveness?—Yes, I have kept many records of this kind of thing, for instance, I have every scrap of drawing done by two or three children from their birth; and in other cases I have a series of drawings.

6853. Do you consider it essential in beginning to teach this system that the children should draw from the shoulder with their other hand behind their back?—Not at all. I think it is necessary that all the organs that are employed in the business should be exercised, it matters little whether they are mental or bodily. If you have a ball-and-socket joint and that joint makes a movement better than your hands, use it, but exercise every other joint. The child itself when it makes the scribble moves its whole arm.

6854. Then you don't consider it depends on any one position of the arm?—I think the whole free arm should be used from the shoulder.

6855. Judge Shaw.—Is there not a great deal of cramping in the ordinary kindergarten?—Once my attention was called to that fact. I was in a kindergarten class where they had been drawing; they had been making very neat little lines, and one child had scribbled all over its drawing. I said "There is nature's protest against Froebel's drawing."

6856. Professor Fitzgerald.—I understand you think that originality in a child would be killed if it is not encouraged early?—I do not think I said so; there is no such thing as killing originality; so long as a person is living he will have originality, for all thought is original.

6857. Don't you think they cease to understand if they are taught imperfectly?—Then almost everyone must cease to understand because I don't think we have much good teaching. My great difficulty about this whole business is to get people to understand what education is.

6858. Mr. Struthers.—Naturally they must be very bad, seeing that they could not get better teaching invented?—I think there is a great deal in that, but I cannot find people who teach and educate also.

6859. Chairman.—Have you ever been in Ireland?—I have, once.

6860. Professor Fitzgerald.—You know Mr. Coward's work at the Alma school?—Yes.

6861. We were very much impressed with it; in fact I should not have thought that the children could have produced such designs at all. We saw the children drawing these patterns, but we had no opportunity of finding out whether one child reproduced each day the same pattern as he had done the day before?—That is heresy; no such thing would ever happen; a child when it once gets the power of putting elements together is so self-possessed and independent that it would not even look at its neighbour's beside it.

6862. That was a thing we could quite well see, but what we could not see was whether a child after doing a pattern one day, and then being set to do a pattern another day, with a certain amount of small directions, did not do the same pattern as the day before?—I can answer that right off: they never do. The Alma Board School is the first attempt among the elementary schools to do this, but the same thing has been done before.

6863. You mentioned in the beginning that you took some interest in the science training?—Yes, natural science. I think that here again we want science taught on psychological principles—that is, that you should do away with all didactic teaching, and adapt your teaching, as much as possible, to the capacity and nature of the child.

6884. Do you think you ought to encourage the children to collect things?—I don't know about collecting, but you ought to encourage the children to see the objects round about them.

6865. How can you do that?—I have asked everyone in my classes, "Draw me a brick wall." In London there are such things as brick walls, and I found only about 1 in 25 knew how the bricks are put together in a wall. You must keep your eyes constantly open for everything round about you; you need not collect them—keep your eyes constantly open. Science depends upon observation.

6866. And also on ingenuity in testing your observation?—That will be by experiments, which is only an extension of observation.

6867. It is an important extension, because the person who makes the experiment has to invent what to try?—You cannot help forming your theory, but the verification will depend again on your observation. We, as a rule, take merely text-books, and give lessons, and tell what is to be done, and expect the children to tell us back. That is the kind of science teaching that I don't think desirable.

6868. Have you considered Mr. Heller's work at the Tower Hamlets?—I have not seen it.

6869. Monsignor Molloy.—You have a very high opinion of the intelligence of the children?—I believe that most children have, if not high intelligence, the potentiality of high intelligence if the right conditions are given, only we don't, as a rule, give the right conditions—we give men's work instead of children's

6870. Do you think drawing is a good means of bringing out that intelligence?—Yes; drawing suits the child, it reproduces its own thought, it criticises that thought, and in a number of other ways it is delightful to the child, and directly you get a thing delightful and interesting, the child will take more pains and trouble with its work.

6871. It improves its powers of observation very considerably?—Yes, and its power of expression and perception of things beautiful.

6872 But you have not so high an opinion of the intelligence of the teachers?—I have been trying for a long time both in science and art to get teachers to understand what is meant by education, that is the drawing of the thing out of the child itself, and I don't find that the teachers as a rule have that power.

6873. Professor Fitzgerald.—I think the results of that experiment of Mr. Coward are the most wonderful things I have ever seen in the way of designing?—Mr. Coward is the one exception; the syllabus went all over the country and Mr. Coward is the only one that carried it through the whole school.

6874. Captain Shaw.—How far could you trust your syllabus in the hands of the ordinary teacher?—I did not trust it to the hands of the ordinary teacher.

6875. But would you?—I would trust it to anyone who thought they could carry it out. I simply drew up the scheme and have nothing to do with who is to teach it.

6876. If you recognise that every child ought to learn some drawing, which would you prefer that they should start on, the alternative freehand or have a more rigid system?—I should say the alternative; the other is not elementary drawing in a complete sense. It makes only an arc and a straight line, and immediately after, it gives a whole series of copies in which those lines don't enter. It is less adapted to the child's nature.

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FIFTEENTH PUBLIC SITTING.—MONDAY, MARCH 29, 1897,

AT 11 O'CLOCK A.M.,

At the School Board Offices, Liverpool.

Present:—The Right Hon. the EARL OF BELMORE, G.C.M.G., in the Chair; His Grace the Most Rev. WILLIAM J. WALSH, D.D.; The Right Hon. C. T. REDINGTON, M.A.; His Honour Judge SHAW, Q.C.; The Right Rev. Monsignor MOLLOY, D.D., D.SC.; Rev. HENRY EVANS, D.D.; Rev. HAMILTON WILSON, D.D.; Professor G. F. FITZGERALD, F.T.C.D.; W. R. J. MOLLOY, Esq.; Captain T. B. SHAW; and J. STRUTHERS, Esq., B.A.,

with J. D. DALY, Esq., M.A., Secretary.

Mr William Oulton.

Mr. WILLIAM OULTON, Vice-Chairman of the Liverpool School Board, examined.

6877. CHAIRMAN.—I believe you are Vice-Chairman of the Liverpool School Board?—Yes, I am.

6878. You are also Chairman of the School Management Committee?—It is in that capacity only that I wish and am capable of giving evidence.

6879. Have you presided over the joint conference of the Board and school managers to consider the subject of manual instruction for elementary schools, 1889–1890?—I did.

6880. And subsequently over a large conference of representatives of the Board and of various institutions of the city interested in another branch of the subject?—I did.

6881. Will you give in detail any observations you care to make on that question?—I would like to emphasise two features of the Board's policy in regard to this general subject. I think they should be borne in mind to understand certain aspects of the action of the Board and its methods. The first is that scholars attending the voluntary schools are all invited to partake, as far as they legally can, in this work which can be done in common, and therefore we have centres in connection with manual instruction, to carry on the work up and down the city, available for the scholars that attend the voluntary schools so far as they can legally receive instruction in them. The details of that arrangement can be explained afterwards officially. The other special feature of the policy of the Board has always been to give every scholar an equal claim to the very best education that under the Act can be given as elementary education. The poor schools in the city as well as those in the better parts have, as far as we can bring it about, exactly the same educational advantages as schools in the most favoured positions in the city. Hence there is no so-called higher grade school in Liverpool. Our object has been to make every school under the Board a higher grade school, and we have succeeded to a very great extent, at any rate in that the number of our scholars in standards five or six and seven and ex-seven will compare favourably with the numbers in attendance at higher grade schools under those Boards that possess them. Then I think it would be well to give the present condition of those under the Board in chronological order. The details can be supplied afterwards, but from kindergarten and drawing in boys' schools down to the latest manual instruction and organised science schools, the Board has passed through various experiences. What I wish to make clear is that the actual instruction being given—the system in existence—is a product of evolution. It was not designed to be one from the beginning as a system commencing with a basis of kindergarten and going on through to science instruction in specific subjects and so on to manual instruction and organised science classes, but it has really been the development of a growth step by step. Each piece as it produced effect suggested the one that followed it; and therefore it may be regarded I think as likely to be permanent. Having been so developed it has stood the test of time. It has marched out of the region of theory and has been accepted by experts as the best arrangement possible to secure the object of the instruction.

6882. Will you let me ask you one question. Is there not a gap between kindergarten instruction and the taking up either of elementary science or manual instruction?—Not now, but there was a very considerable gap.

6883. Will you tell us what the gap was?—Between the infants in the first standard there was no provision until the elementary science instruction which was given in the fourth standard.

6884. Then there were three standards in which there was a gap originally?—Yes.

6885. That you have not now?—That we have not now. That has been remedied since 1888, and more particularly since the Report of the Royal Commission on Education and the Technical Commission, in which they pointed out that gap in the education of the country. Attention was called to it in 1890, and a system of higher kindergarten was introduced under which all the standards from the infant up to standard 4 continued manual instruction of which kindergarten is the basis.

6886. Will you first give us some information with regard to instruction in elementary science?—The instruction in elementary science under the Board is given under this arrangement. We have one superior science demonstrator, and he has assistants under him who are specially qualified by science attainments for this duty, and all have certificates of elementary school teachers. We have the apparatus and a kind of council chamber in a centre.

6887. In one centre?—In one centre. We don't limit ourselves to one centre I may say geographically. We intend to have more as the need arises from the spread of the city, but this idea is to have the apparatus in a centre; and we use the centre also as a kind of council chamber for the chief demonstrator to consult with and advise his assistants. The arrangement of classes is a very important matter, and whatever superior knowledge and attainments the superintendent has he ought to be able to transmit it to his assistants; and he does so, and in this way I think we secure ease and naturalness, and the demonstration being the product of the best mind influencing the rest, which otherwise we might not get. From this place the apparatus is taken to the various schools, and the teachers move from school to school to give instruction.

6888. These are the assistants?—The assistants. The chief demonstrator used himself to give demonstrations, and does now to a limited extent, but owing to the extension of the system it has become practically impossible for him to find time to do much

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in that direction, nor is it desirable after we have passed through a certain number of years of experience of the matter. Then, in addition to that, I may state that it has been the object of the Board to let the schools provide from their own staff some teaching power in this subject. It is desirable that it should be done if possible, and no doubt with time the teachers will see the value of their obtaining this science knowledge, and we encourage them under an arrangement that on passing an examination held by the chief demonstrator they shall have an addition to their salary. In this way we will be reducing the cost of teaching this particular subject.

6889. Do I understand you rightly that the apparatus is moved from school to school?—As a rule some little portion is kept in some of the larger schools now, but originally it was moved entirely.

6890. The plan is this, that you have a science demonstrator and his assistants, and the demonstrator as a rule confines his work to one centre?—Yes.

6891. Whom does he instruct?—His assistants in this centre.

6892. And he does not instruct the teachers as well?—Oh! he does give the teachers demonstration also, but that is in connection with the pupil teachers' class.

6893. Then having instructed his assistants, they move about the schools to instruct the teachers of the schools?—Not to instruct the teachers, but to instruct the scholars.

6894. They give demonstrations to the scholars?—Yes.

6895. And they take portions of the apparatus with them from the chief centre?—Yes, there is a little handcart specially invented for the purpose of carrying the apparatus without risk of breakage.

6896. And that work can be carried on in the ordinary class-room of the school?—Certainly. It has been the aim of the Board to give this in the easiest and most natural way, so as not to interfere with the ordinary instruction of the school. The less apparatus we have the more simple it is, and the better the Board is pleased, and I think the science demonstrator himself thinks more creditable to him.

6897. Then as regards elementary science, I may take it that it would be possible, taking the matter to Ireland, to teach it in the ordinary school without providing a special school or building in addition to what already exists?—Yes, the only thing is if you have only one room.

6898. That is more generally the case in rural schools, formerly at any rate?—The only objection is the presence of the scholars who are not receiving the instruction, otherwise it does not matter.

6899. In that case it would be necessary to fix an hour when the other schools could be dismissed?—Yes.

6900. In Liverpool of course you have many rooms in your schools, and therefore it does not arise?—Yes, but the standard that is receiving this instruction in every case can have a room to itself while receiving it.

6901. Will you give us your observations with regard to instruction in woodwork for boys?—That is taught in centres. When it was first tried by the Board there were many suggestions naturally, and this is the result of much thought about the matter, and experience. It was thought that it could be taught in the schools, and that existing rooms might be made use of for this purpose, but it is quite different from elementary science instruction, and fortunately it was determined to teach it in places specially built; for the noise and disturbance generally to the ordinary instruction in school would have been fatal to it. That is quite clear now; so that the subject is taught in iron buildings which have been erected, and they have also passed through a period of evolution, and we have got a building now very superior alike in arrangement, and cost, I am sorry to say, to the one that was first erected. The centres of course are contiguous to a certain group of schools, and we have a staff superintendent who takes charge of them and of the instructors. You will remember that this was pioneer work for the Board. We had to teach, as it were, the teachers. They were not ready to our hand, especially in the matter of manual instruction: the teachers required special training for the purpose, and this is the way we have done it. We got assistance from the University College here, which established in its engineering department classes for elementary teachers to qualify in knowledge of this matter of woodwork and metal working, and gave certificates to students as qualified to teach in these particular subjects.

6902. May I ask you whether any of those teachers have been, before they became teachers, artizans in woodwork themselves?—Yes, more than one. I have a statement which will give the Commission exactly the particulars of the respective qualifications of each teacher; but we have no experience that the artizan, the practical man, is as useful for our purposes as the trained elementary teacher who has obtained knowledge sufficient of the work to enable him to teach it. The practical man knows more about the work. He can produce an article more finished and good, but what you gain in that practical knowledge, no doubt, you lose in not having trained qualification for holding the attention of the scholars and for expressing the knowledge that is in the teacher, and especially in regard to maintaining discipline. It is a subject of course in which boys are a bit boisterous, and all the restraining power which teaching ability gives is required in dealing with lads, particularly when receiving instruction in this subject.

6903. Do you find that the lads like this sort of instruction, and have you had any cases in which exemption from it has been asked for?—From personal observation and the concurrence of testimony from teachers and parents, and the men who are actually engaged in the work, I am convinced the boys enjoy it. It is a positive pleasure to them to undertake this manual work. I don't think we have half-a-dozen applications for exemption. There is no doubt a certain number of boys are unable to go through the physical labour, but it is a very small number. I have heard it estimated at something like six per cent. We take the lads in standard 5 when they are not very old.

6904. About eleven and upwards?—Yes, eleven and upwards. Ten perhaps, some of them.

6905. We have some evidence that manual instruction was so popular with the children that it induces them to be more regular in their ordinary attendance. Does that apply in Liverpool where you have instruction given in certain classes and where, I suppose, the attendance is compulsory?—Yes. We do not think that good attendance depends so much upon the compulsion we exercise. I am not sure there has been any perceptible effect of that kind that could be traced. It is very probable, but our average attendance apart from this has been exceedingly good and it will be very difficult to raise it in the better class of neighbourhoods.

6906. I was told in one London school that I inspected, that the effect of giving instruction in metal work was to induce many boys to take up that line as a trade instead of becoming clerks. Is that your experience here?—Well, we hope so. I think we have hardly got statistics enough to justify us in saying it is so. There is every probablity that it is; and it was with the hope that that would be brought about that the instruction was introduced; to remove from the minds of scholars who pass through our schools a little tendency to depreciate manual labour. I don't know that the tendency is very direct or very influential, but I think it must be so. I will allow that this book learning and the importance attached to it and relegation to the background of work of that nature must induce a kind of feeling that manual labour is a little derogatory; and it was largely with a view of

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removing that and inducing scholars to see the goodness and repute of manual labour that it was introduced. We have some figures that I would submit to the Commission. We took out the history of twenty-five boys who attended Orwell-road, which is the school we shall have the honour of taking you to, as to where they went after leaving the centre, and,—if I may run through,—one is an electrical engineer.

6907. Would you prefer to give them orally, or would you think it would answer the purpose if you handed them in?—I think it will answer the purpose if I hand them in, because it is sufficient to say that the statistics, so far as they go, amply confirm the suggestion that you have made in your question that boys are affected by the instruction towards manual labour.

6908. Monsignor Molloy.—Were these twenty-five taken at random, more or less, not selected in any way?—Not selected in any way.

6909. Chairman.—Passing on to the buildings, will you describe the kind of buildings you have erected, and any matters connected with them that would be of use to us?—It should be a plain building, rather partaking of the character of a workshop than a school; there is no need to have separate offices attached to it for instance, except of the very simplest and smallest character.

6910. What material would you recommend for making the building?—Iron in our experience is better with such a combination of wood as makes it pretty warm and keeps out the cold.

6911. How did you do that? Did you line it with wood?—Yes.

6912. Did you use stones at all?—No, but we made a brick foundation.

6913. Have you any fire in the room?—Oh, yes.

6914. Have you a regular brick fire-place?—Yes, we have a heating apparatus.

6915. About how long do you consider that building would last?—Our first building was erected in 1890. It is as good now as the day it was put up. I think myself twenty years would be a very reasonable age to give it.

6916. And what would be the cost of such a building as you have in your mind?—We began with a cost of about £200, indeed less than that, but it was a very small affair.

6917. Could you give the length and breadth and height of it?—Of the last one we can put in the dimensions exactly.

6918. We should be rather glad if you gave us a somewhat detailed summary of that sort?—We can give you the exact plans. They were planned by the School Management Committee, and have been built without the intervention of an architect.

6919. Is the cost defrayed by loan?—No, it was not. We have applied from time to time to the Department, and I think we have succeeded in impressing them with the fact that a loan can and ought to be granted.

6920. Captain Shaw.—Which Department?—The Education Department.

6921. Chairman.—If you had a loan, what rate of interest would you expect to pay, including the sinking fund?—I should think that we ought not to ask for more than ten years.

6922. In borrowing a loan, as I gather from you, the life of such a building as you are erecting would be twenty years, and of course the sinking fund would have to be adapted to that?—I think if the Department allowed you to borrow for ten years it would be about right.

6923. What rate of interest would they charge?—To repay principal and interest in ten years you would have to pay about thirteen per cent.

6924. Therefore if you borrowed £200 you would have to pay £28 or £30 a year?—About that, but that can be worked out exactly. We have no loans of ten years except this, and this is not through.

6925. Now, coming to the selection of teachers, have you any remarks to make about that?—Only that the teachers should be trained elementary school teachers rather than practical men.

6926. What is the nature of the instruction they should give?—That is very important to bear in mind. The object is not to teach a trade. Great jealousy was raised in the first instance amongst the trades unionists, because they had a little misunderstood the object with which it was introduced. I took some time to explain it to them; but it was quite capable of explanation, and they saw that this instruction does not interfere at all with them or render unnecessary an apprenticeship to a trade. It has no relation to trade. It is intended to give instruction in the principles which are applicable to woodwork or whatever material the lad may be working in. He is not taught to be a joiner if he works in wood, but is taught the principles which would enable him to apply in the best way his faculties to the particular trade to which he may ultimately go.

6927. Did you act upon the principle which we have found prevailing in Birmingham, but which does not prevail in London, that boys are not to finish any article, but only to make a portion of an article, such as dove-tailing, when dealing with the principles of joinery work?—No; I think that would be like curbing unduly a high-spirited horse. You must let the lad see the finish of his work. We have no restraint of that kind.

6928. If you follow me, in Birmingham they do not allow in their manual classes a whole box to be made. The boy would make the side of a box. They would not allow him to make the whole of anything, whereas in London that is not the case?—Nor is it the case here.

6929. I suppose there was some reason for it?—Well, I can see the reason, but it is a very inadequate one, and has no foundation in fact. The trades unionists would just as much object to a lad making half a box as they would to his making a whole box, and it is a very one-sided way of giving instruction.

6930. Passing on from that, do you think that desirable results are obtained by manual instruction being added to the ordinary school routine, and, if so, in what way?—Yes, I think most important results are obtained through it. It has the direct effect of arousing the observation and stimulating the lad or girl to think. It is generally admitted by teachers that the children become vivified and quicker in apprehension in taking in elementary subjects through their having this various science and manual instruction; and we have some statistics that seem to point to that, notably those that bear on this elementary science instruction by means of demonstrations. The whole object is to give the instruction in such a way that the girls and lads are not crammed with it, but that their observation—the hand and eye—are both trained to work together, and where that is being done they are so much brightened by it that they can be taught better in their elementary subjects. The teachers as well as the demonstrators say so, and it is our experience. After the introduction of elementary science our passes in ordinary subjects rose considerably, and then an enquiry was made after a reasonable time from the introduction of the subject, and it is my own conviction that any fair-minded man would connect the two things. There is a very considerable increase in the percentage of passes. These figures are also available for the Commission.

6931. Do you consider that the scholars are prepared for further technical instruction?—Yes. The introduction of manual instruction more particularly was originally stimulated by the report of the Royal Commission on Technical Instruction, and the passing of the Act. When that Act passed it became incumbent on the local authorities to provide technical instruction, and it was forced on this Board and other primary education authorities, to consider what they could do in order that the technical instruction which was to be afforded under them might be taken advantage of to the greatest extent. This technical instruction prepares the scholars for the subsequent higher instruction. When I was a member of the committee of the Science and Art classes here, which was the chief body dealing with that subject before the introduction of the Act, we were continually having to refuse them because they were absolutely ignorant of the elements of what would be taught. They had to be turned away by scores. If all the great advantages which it is claimed are to accrue from technical instruction are to be availed of you must give these lads in your schools and the girls a preparatory training, which will enable them to take advantage of the provisions thus made. It will be a very fine thing if there is such a vivification of education authorities as to make the very best possible scheme available consequent upon one authority having to deal with every graduation of education. This is a strong illustration of it You must prepare in the elementary schools for the technical instruction to be hereafter given.

6932. Well, I think you have already said that the tendency to depreciate handicraftism is diverted and perhaps removed by this instruction?—Yes, I think it has that effect.

6933. Do you find the school life is prolonged?—I think it has had the effect. It is one of the difficulties that elementary educationists have had to contend with, the early age at which scholars leave them. They leave so soon that the instruction given them has made a very slight impression. It is not soaked in, and in many instances we meet with lads and girls who after they have left school have almost forgotten how to read, and have entirely forgotten how to write, but if you kept them in school until they were a little older the chances are very much increased of their retaining and benefiting by that instruction.

6934. Your experience now is that they remain longer?—I think so. I have a table here showing the number of scholars in fifth or sixth or seventh standards in the years 1885 to 1895, and the number who leak out, including standards five and six, has very considerably decreased of late years. Take 1885, there were 727 boys then in the fifth standard. Now they should be moved up and be examined and passed in the sixth standard, but instead of that in 1886 there were only 328 boys in the sixth.

6935. What became of the others?—Ah! They might have attended school part of the year. It is not as black as the figures appear to suggest, but, allowing for all that, that they may have attended school part of the year or that they may have gone to some other place to school, still 500 children are missing from standard six who are very likely—a large portion of them are certain—not to have gone to any school at all. They are leakages.

6936. Monsignor MOLLOY.—Have you standard seven?—347 boys are in standard six and only 99 are present and passed in standard seven.

6937. And ex-seventh standard?—In the year 1885 there were no boys in ex-standard seven.

6938. Most Rev. Dr. WALSH.—It might be convenient if we had the number in each standard. You have now 91,000 in attendance here in Liverpool?—Yes.

6939. Can you tell us from that paper before you what is the number in each standard, the number on the rolls?—No, I have only got the attendance at the School Board schools.

6940. What then is the total attendance at the School Board schools?—The average attendance shown is 25,277 in the year 1895-'96.

6941. Now can you give us the average attendance in each of the standards in the Board schools?—We have only the upper standards; 2,168 in standard five, 1,392 in standard six, 558 in standard seven, and 48 in ex-standard seven.

6942. When children reach fourteen years of age they are quite free from the legal obligation of attending school?—Yes.

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6943. That might account for the disappearance of a number of these children?—Oh, yes.

6944. And probably does?—Yes. I can give you the number for the respective years of age. Of fourteen years of age in standard five there were 57. They had no right to be there. They ought to have been out of the standard two years before.

6945. But they are at liberty to attend?—Yes; and a large number give up.

6946. Now, how many are there in standard six?—There are 107 of fourteen years of age.

6947. In standard seven?—112.

6948. These children were attending voluntarily?—Yes.

6949. Now, coming to the general subject of our inquiry, you mentioned that when practical instruction was introduced the action of the Board in introducing it was misunderstood?—A little

6950. By persons who failed to take in the real object of having it taught in school?—That was so.

6951. Do you think that feeling has disappeared?—Entirely.

6952. There was opposition felt, I suppose, not only amongst the trades unionist people, but also amongst the teachers of the schools?—Very little from the teachers.

6953. Do you think the teachers from the beginning understood the educational object of this branch of instruction?—I think the majority of them did.

6954. Were any steps taken to bring before their minds the idea that there was an important educational object to be attained by this work?—Frequent consultations were held by them, the Clerk of the Board and our inspectors and ourselves. It is a policy we have always pursued of taking our teachers with us. We have never found them dull of comprehension, with regard to any progressive movement.

6955. You found them reasonable in this matter?—Very.

6956. The main object, I suppose, of this kind of work in the schools is to enable the children to grasp certain principles?—Yes.

6957. And it also cultivates certain faculties and habits of mind that might not otherwise be cultivated?—Would not, I believe.

6958. So that, in addition to the directly industrial aim of this work, there is also a very important general educational aim?—That is so.

6959. I take it that in Liverpool you try to have this practical training gone through upon general lines, and not in reference to any specific trade?—We carefully avoid that.

6960. Even though the work is done in wood you take care it is not elementary carpentry that is taught?—Quite so.

6961. You said that this work has a direct connection with trades, so that no matter what trade the child goes to, he is better prepared to enter upon his apprenticeship to that trade than if he had not got this training?—That is so.

6962. Do you not think it is also true that by this practical training in school, children are prepared for other occupations as well as for trades?—Yes, for every occupation that requires that the hand and the eye should be used together. They are qualified far better than they would be if they had not this instruction.

6963. I suppose accuracy of observation, neatness, and so forth, are cultivated by these practical branches of instruction?—Oh, certainly.

6964. Then they would be of use also to persons who pass into the learned professions?—Yes.

6965. So that the advantages are not confined to those who become artizans, but extend to all the children of Liverpool, no matter what their future career in life may be?—Clearly.

6966. The School Board of Liverpool acted, I believe, the part of pioneers in this class of school work

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in England?—I think so. Not only in the teaching of elementary science by demonstrations rather than from books, but in this matter of manual instruction, we were amongst the first if not actually the first.

6967. And if I recollect rightly, your action was referred to by some members of the Royal Commission as an example that might be followed by all the schools in England in the matter of elementary science. Professor Huxley called special attention to that?—We are deeply indebted to the Science and Art Department and to the City and Guilds of London Institute for advice, especially in regard to the selection of men in this matter.

6968. In the beginning there was a gap between the work in the lower standards and what is done in the higher standards?—Yes.

6969. That gap was then filled up?—It was and is.

6970. Mainly by your acting on the recommendations of the Royal Commission?—Yes.

6971. It was filled up partly by developing the kindergarten work from below upwards?—Yes, almost entirely.

6972. As regards science, which had been taught only in the higher standards, the gap was partly filled up by introducing object lessons into the lower standards?—Yes.

6973. At what stage is manual work taken up in the school at present?—At standard five.

6974. By manual work you understand working in materials such as wood and metal?—Yes.

6975. I suppose there is a certain amount of manual work, in a wide sense of the word, in the lower standards?—Yes.

6976. We found in Birmingham a distinction between what is called manual instruction, which is in the higher standards, and hand and eye training in the lower standards?—Yes.

6977. Taking the work generally there is training of the hand and eye carried out in all standards under the Liverpool Board?—That is so.

6978. Do you make any distinction between manual instruction and technical instruction? I may say to you that I put this question because we have to try to instruct public opinion in Ireland through the evidence we are taking. I observe in your School Board Report, and a very interesting Report it is, there is one section on manual instruction and another on technical instruction. Technical instruction I suppose is something higher, more in the nature of what is given in a technical school?—Yes. Technical instruction as in connection with science belongs more particularly to the organised science school.

6979. And also in reference to particular occupations perhaps?—Well, chemistry may be regarded as a particular occupation.

6980. Now, in reference to this elementary teaching in science, you speak of apparatus and demonstrations: experiments are performed?—Yes.

6981. Are these experiments performed by the children themselves?—Sometimes a well up boy will be brought up to assist in that way.

6982. But merely to assist?—To show that he knows it and also interest the class. It is rather a matter for the discretion of the teacher.

6983. You don't make it an important branch of your elementary science work that children should be taught to make experiments and find out things for themselves?—Oh, yes. In what may be termed small matters, experiments. That is an essential port of the system. They are asked themselves to observe and suggest, "Now, would you approve of this." "What kind of experiment would you suggest?"

6984. You do not confine yourself to such suggested experiments?—No. They would be allowed now and again to use the apparatus, but more particularly I think they are encouraged to bring little apparatus of their own.

6985. All the better I suppose if they could make some little apparatus themselves and not merely buy it in a shop?—Oh, to buy it readymade would be nothing.

6986. Do you give more prominence to the system of having experiments made for the instruction of the children, or to the system of the children making experiments for themselves, in your elementary science department?—I think they go hand in hand with us. I don't think the children would be qualified to make those experiments unless they had the example and teaching of the teachers. The teachers object is to satisfy himself that the object he has in view is attained by means of the children being vivified and interested in the subject.

6987. Your principle is to teach them the principles or the facts of science by means of experiments performed by the instructor?—You have described it exactly. Rather than importing knowledge from text books.

6988. Let us have this point quite clearly. There are three systems. One is imparting knowledge from text books. The other is imparting knowledge by means of experiments performed by the instructor. The third is teaching children by certain scientific methods and by setting them to work out experiments for themselves. I think you have the second and third?—I think so.

6989. You attach more importance to the second than to the third?—I think so. The children are too young for the third.

6990. You have not told us anything about cookery or laundry work: you have, I know, cookery work on a large scale for girls?—Yes.

6991. There are about 2,000 children obtaining instruction in cookery?—Yes.

6992. It is taught I suppose in centres?—Both in class rooms in the schools and in centres wherever we could. We are convinced that such subjects as cookery laundry work and manual instruction are better taught by means of separate buildings and rooms than in parts of the premises of the school.

6993. This work is to some extent in an initial stage?—Cookery we have been at for a long time Laundry work we have only just taken up. I think there is more danger of these subjects that have been taught to girls being taught in a mechanical way with a view of perfecting them in the actual work done, to cook and wash, rather than as regards boys, and you would want to be a little more careful.

6994. Careful to keep the educational idea prominent?—Yes.

6995. And this is specially true with regard to needlework?—Yes.

6996. What is the time given to needlework in the schools here?—I think five hours a week.

6997. We find some educational authorities in London, Sir Joshua Fitch, and others, complaining that the time given up to needlework is too long, in proportion to the educational value of the work. I suppose you agree with him that there is a special danger of the educational aspect of the case being lost sight of in such branches as needlework, cookery, and laundry?—I do.

6998. And you would combat that difficulty as far as possible?—Yes.

6999. You would make a special effort to do this as regards girls?—It is not so necessary with regard to boys.

7000. You consider that the introduction of the various kinds of manual work has had a good effect on the attendance in the schools?—I do.

7001. Have you the system of two school attendances in the day; a morning and an evening attendance?—Yes.

7002. That is, I think, universal in England?—I know of no exception except the half-timers.

7003. We were told in London by several persons that the attendance has notably increased at the hours given to manual instruction and to practical teaching, as compared with the ordinary exercises of the week.

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Is that your experience in Liverpool?—The average attendance at the classes is better, but I should not say it was owing to the instruction.

7004. But this would be the natural effect of the introduction of this practical work if, as I assume, the children are interested in it?—They are.

7005. All children come more rapidly to the thing they are interested in, than to one in which they are less interested?—Yes.

7006. We find they have now introduced at the girls' side in London a section for housewifery, that is, domestic economy, the tidying up of the house, and some nursing also, I think. Do you aim at anything of that sort in Liverpool?—Not directly, but under the head of domestic economy we cover that ground.

7007. I hope domestic economy is not taught as it is with us in Ireland, merely out of books?—No. We there again try to adapt this to the system we have in elementary science instruction.

7008. I suppose this branch of the work is also in a progressive condition?—Very much, but domestic economy has improved very considerably of late years.

7009. Speaking generally as regards the practical side of school-work, in Liverpool at present, as a result of the experience of a number of years, the tendency is to go on extending this kind of work, and there is no feeling that it has gone too far and ought to be checked?—There is no fear that it has gone too far.

7010. On the contrary, the tendency seems to be in a progressive direction?—Yes. We do not wish ourselves under the influence of that particular feeling. We are now opening two additional centres, and we are conditionally receiving from the voluntary schools scholars, showing that they are interested in the matter.

7011. You welcome the attendance of the children of the voluntary schools in these centres?—Yes.

7012. Had you in the beginning much practical difficulty in instructing the teachers?—Not so much as might be supposed.

7013. You said, I think, that you preferred to secure the services of ordinary school teachers rather than highly qualified artizans?—Yes.

7014. How do you manage to prepare the teachers? —We could not have done it without the help of outside teachers. The University College here has taken an interest in this work from the beginning. They were associated with us in the conference to which I have already referred, and they trained the teachers for us both in wood work and in metal work.

7015. Mr. Redington.—How much time is given per week to manual work?—About two hours to each scholar.

7016. What subject was displaced in order to make room for that instruction?—I don't think any subject was displaced; the timetable had of course to be altered

7017. To what subjects did you devote less time? —I think it was distributed over all the subjects, I don't recollect; indeed I am sure that no subject was displaced.

7018. You cannot say what subject had less time given to it?—No, I do not remember that.

7019. Have you any means of knowing the feelings of parents with reference to manual work? Do they approve of their children's time being taken up in the study of a thing that may not be practically useful to them afterwards?—Well, one's knowledge about that is rather negative. It is by the absence of complaint that one concludes they do not object, and we have had no complaints. There have been a few instances in which exemption was claimed. I was myself tackled by a father at a public meeting because I condemned his son to the humiliation of doing manual work, but he received no sympathy from a somewhat crowded audience of working men: that was a mere incident.

7020. Professor Fitzgerald.—You stated that there was an increase in the salaries of the teachers if they qualified to teach science. Did you trust to that to induce the teachers to take up the subject?—We did not trust entirely to that, but it was a little stimulus no doubt.

7021. You think it was a valuable stimulus?—Yes, it drew their attention to the importance the Board attached to this subject. It was not so much the value of the money as that it was intended to convince them that it was important.

7022. That the Board attached importance to it when they were willing to pay for it?—Yes.

7023. Is there any outlook for the promotion of these assistant science teachers?—We found in London they had some difficulty to get teachers to take up the manual training, because if they became manual teachers at a centre they got out of the stream of promotion; they were shunted?—That is so; that is felt, but I think there are two things they trust to—one is that there will be positions of increased value in connection with technical instruction opened to them.

7024. Under the Beer and Spirits money?—Yes, and also under Boards; as this work extends more men will be wanted duly qualified for it. Then there is the natural aptitude that many of them have for this kind of work, and a liking for it, so with both combined, we have a sufficient supply of competent teachers.

7025. We found that in London they attributed some importance in the early standards, about the 3rd standard, to clay modelling. Do you work that here. In Birmingham they thought it too dirty work for children?—I don't think we have clay modelling. Well, we have a little of it in the juniors, but we propose to try clay modelling. We are experimenting with it now in the upper standards in connection with wood and metal working, but we have not had enough experience to justify an opinion being expressed.

7026. Besides the manual and science instruction has there been any tendency to develop art instruction?—No.

7027. Any development in the direction of colouring?—No, only such as is afforded by the kindergarten exercises with coloured papers: the art side has not had much attention I think, one may say, from the Liverpool Board.

7028. Do the Board attribute importance to science as a subject of instruction as distinct from the manual instruction? Do they look upon them as two distinct means of instruction, because in some places they seem to think that the manual instruction would be a substitute for science instruction?—I think they are very distinct in our minds as far as that goes.

7029. You think they have got a distinct educational value?—I think so; one would not be a substitute for the other.

7030. Captain Shaw.—At what standard does the science instruction by the demonstrators begin?—The fourth.

7031. Is there any preliminary instruction leading up to this; are there any object lessons?—Oh, yes, that is given altogether by the teacher in the school in the ordinary way.

7032. But the object lessons given under your Board are entirely science instruction, all framed for preliminary science instruction?—Yes, given under the manual that was drawn up by the Board's then science demonstrator.

7033. This gives a preliminary introduction to science before the demonstrator comes round?—Yes.

7034. In the fourth and fifth standards is there a definite science taught or general science?—Mechanics particularly are taught; there is a syllabus.

7035. You could not class it under one particular head, chemistry for instance?—Certainly not, mechanics is the generic term.

7036. It has some physics in it too?—Yes.

7037. There is one question about the woodwork instruction—I don't know whether it was quite clearly brought out; you don't make it an object that each boy should complete some useful work?—No, we not.

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7038. On the other hand you don't consider it objectionable that he should?—No, but we certainly should deprecate his being prevented from completing any particular object: if he were set to make a box we should like him to finish the box.

7039. But some of the exercises which are set are not complete and useful objects in themselves?—Oh, no.

7040. But in addition to these they do make objects when they have attained sufficient facility in the use of tools?—Oh, yes, and they take them home.

7041. As regards those boys you mentioned, of whom you took twenty-five, had they been through the three years' course and done woodwork and metal work?—I am not sure whether they had gone through the third year, all of them; no, they had not; I see now; only the first two years.

7042. On that point, metal work is your third year's course?—Partly. I may say as regards this metal work, it is in quite a condition of experiment. I am not prepared to say that we are satisfied of its being superior to the wood-working as elementary instruction: it may lead up to that, but we have only had it opened for about two years on a very small scale.

7043. You have a three years' course of woodwork?—Yes.

7044. Then do you consider it desirable in starting a new course that any cut and dry plan should be laid down for woodwork, or would you prefer to leave it to the discretion of the teacher?—I think if you got the right men to advise you it would be better to have a course laid down. You are not sure that each individual teacher would devise the best in his own mind.

7045. But if you were commencing instruction you would have to get a competent man to organise at least?—Yes.

7046. And you would leave the course to his discretion?—Yes, that is what this Board did; we had no means ourselves of drawing up a scheme, and we left it to our manual instructor, and as there was nothing objectionable on the face of his plan we took it.

7047. I suppose clerical work is the principal employment boys look for in Liverpool; at least there is more of it in this town than any other?—I think there is, but a great number of them drift into seamanship and various manual trades.

7048. Therefore, if you find the manual work of use here, I should think it would apply to almost any place, especially places where there is some manufacture carried on?—Oh, yes. I should like if I might be permitted just to say here that some of us regard this work as of great importance in qualifying the lads and the girls for any manufacturing industry to a greater extent than they ever have been in their education in Liverpool. We have no manufactures here. Now a capitalist who is on the outlook for a place to erect a factory will not be met in the course of a few years by the blank statement, "There are no trained workpeople here for you." He will probably find that the general talk is that the place has been so steeped in technical instruction that there is a class of workers created for him, and if he is debating in his mind where he will put his factory down, that may be the turning point.

7049. You have had no objection from the merchants that their clerks have been spoiled by this instruction?—Oh, no. A lad going straight from this work to an office would be better for this work.

7050. Mr. STRUTHERS.—What is the exemption standard in Liverpool?—Children must pass the 6th standard or be fourteen years of age to enable them to leave school.

7051. There is no longer a compulsory age for passing a standard in England. There used to be a rule of age for each standard—that a boy must pass standard 5 at eleven; that rule no longer exists. Have you found in consequence of this that the age at which children take a particular standard has risen?—Very much.

7052. These children are better able to pass the standards than they were?—Yes.

7053. They do the work more intelligently, and it is likely to have a more lasting hold on them?—If they stay long enough. I am satisfied that the age at which they take the standard has risen.

7054. They take the standard at an earlier age than they used to do?—Oh, yes, very much. Standard 5 belongs to the age of eleven.

7055. The compulsory age was eleven?—Yes. Now you will find that the great bulk of standard 5 are in that year of age; previously they were twelve and thirteen. The table I have before me shows that a great number of lads did not pass standard 5 until they were turned twelve.

7056. Now you have fewer of these?—We have actually more, but the proportion is very much less.

7057. A larger proportion of children pass standard 5 at a lower age than they used?—Yes.

7058. Do you think it is better for a child to pass standard 5 at eleven rather than at twelve?—I would not like to say that, but the principle you referred to created an artificial age at which the child should pass the school. Once he has passed a certain standard, parents thought he must leave school. First it was standard 4, then standard 5, and now standard 6. There has been a great deal made of this view—and that is the misfortune of it—that these lads who pass standard 5 are thought to have completed their education. Our bye-law prevents them leaving until they have passed standard 6; but, owing to the improved attendance, by which a lad gets one-third more instruction in the year than he used to do under the old 250 compulsory attendances, he passes a high standard at a youthful age; and there are more passing the standards at their proper age than ever was the case before.

7059. You say that after the introduction of elementary science, passes rose considerably?—Yes.

7060. You mean passes in ordinary subjects?—Yes.

7061. And you directly connect the two facts?—We do. There is a paragraph in the report for the year 1890 which expresses that very exactly. I shall have pleasure in marking it and handing it in.

7062. So that the effect of introducing elementary science has been to enhance rather than diminish the efficiency of instruction in other subjects?—It has distinctly enhanced the efficiency.

7063. You say it has had the effect of arousing observation and starts lads to think; the teachers say the children become vivified from being taught science and manual instruction?—Yes, they are brighter in their appreciation of the ordinary lessons.

7064. And you think that is the reason why they do better in the other subjects?—I think so.

7065. Does that remark apply to manual instruction equally as to science?—I think so, though I would not say it is so direct, so marked, but I think it has the same kind of effect upon the minds of the scholars; it brightens them.

7066. The manual instruction has the same effect as the elementary science teaching?—Yes, they are always on the look-out to connect one thing with another.

7067. Do you think it is so different in effect as to make it worth while to introduce manual instruction while you have already elementary science?—Certainly.

7068. So that in your curriculum you would have both branches?—Yes, I think so.

7069. As to the practical effect of manual instruction, many of your boys take a two and three years course of woodwork?—Yes.

7070. They must have acquired a certain dexterity of hand in that time?—Yes.

7071. Of course it is not a substitute for apprenticeship, but do you find apprenticeships are shortened?—Not yet.

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7072. Do you expect they will be?—There are many considerations affecting apprenticeships: if there were none except the capacity of the lad when he left school it certainly would shorten his apprenticeship.

7073. That is the point I wanted. I merely wanted your opinion as to whether you think the amount of skill these boys possess would justify their apprenticeship being shortened, skill being the only consideration?—A little.

7074. Do you have science instruction for girls as well?—Well, in connection with domestic economy and physiology we have; we have a special prize for physiology.

7075. But this peripatetic science instruction you spoke of is not given to girls?—No, in a mixed school it is given to the girls—oh, it appears to be given to the girls.

7076. It is desirable, is it not, that the girls as well as the boys should have this instruction?—Oh, yes.

7077. It would be a useful addition, or rather counteractive to the needlework instruction?—Yes, it would help that out.

7078. You have a distinct preference in Liverpool for the centre system, if I may so call it,—for teaching woodwork, cookery, and laundry work in centres?—Yes.

7079. What is the average size of a school?—Of an ordinary elementary school, you may say about 1,000.

7080. That would not be a large enough number of children to justify you having a room for manual instruction attached to one particular school?—No. Some of the schools would supply enough girls for a cookery centre, some of the large schools; but as far as the boys are concerned, the numbers in standards six and seven are too few in each school to make it possible to give them that instruction unless you brought them to a centre.

7081. You don't see any advantage in the girls taking cookery in their own school rather than going to a centre?—I think there is; if you could have a room specially prepared for the purpose, and there were sufficient girls in the school to attend it, there would be no advantage in taking them to the centre.

7082. In a school of 1,000 or 1,200 there would be enough girls to keep a cookery-room pretty constantly filled during the year?—Yes: we have schools in which the cookery is taught in a room specially allotted for the purpose for that particular school.

7083. And attended only by pupils of that particular school?—No, because I am not aware of any school in which the scholars who attend it are sufficient to occupy the whole space at a time, but there are schools where such a schoolroom exists, but it is attended by other schools as well. We have a very fine cookery school in Chatsworth-street.

7084. With regard to teaching science, you say the children are encouraged and allowed to make experiments?—I think they are, but it is not part of our instructions to the demonstrator. I don't mean that that is the system laid down by the Board.

7085. You don't insist as part of the instruction that every child shall make experiments for itself?—No.

7086. Monsignor Molloy.—You said that there is no gap now between the kindergarten instruction and the higher manual instruction, but formerly there was a gap?—That is so.

7087. How was that gap filled up?—It was filled up by the introduction of the advanced kindergarten and object lessons.

7088. What standard does the kindergarten system cease at?—Standard 4.

7089. And at what standard does the higher manual instruction begin?—Standard 5. You mean by the manual instruction the instruction in woodwork.

7090. Then standards 3 and 4 would probably be the standards in which the gap formerly existed, that is now filled up?—Yes, they are taught in the specific subjects in elementary science as well as having in standard 3 the advanced kindergarten.

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7091. With regard to metal work, I think you said that it is at present only in the experimental stage?—That is my opinion, but others think it is the right way to extend this woodwork instruction.

7092. What kind of metal work is taught?—Very simple work, drilling, and the making of bolts and exact planing of the metal; very simple.

7093. I understood you to say that you are not certain as to whether metal work will be found to be as effective for educational purposes as woodwork?—Not quite; the committee wants a little more time before it makes its mind up.

7094. With regard to centres, I think you said it is the wish of the Board that the centres should be open to pupils of voluntary schools if they wish to come for such lessons as cookery?—That is so.

7095. Do you find that they do come from the voluntary schools to any large extent?—Yes; very largely to the manual instruction and fairly to the cookery, not so largely to the elementary science.

7096. You gave us the figures for 1895–'96 of the number of pupils who had passed in standard 5, as 1,216?—Boys.

7097. You gave also the number of pupils in standard 5, as 2,168?—That includes girls.

7098. If you look at that last figure you will see a considerable drop from standard 5, 2,168, to standard 6, 1,392; how do you account for that drop, seeing that standard 6 is compulsory with you. It may be due to the fact of some pupils being exempt by age; what age would exempt them?—Fourteen, but there are very few in the standard at that age. I am afraid you must say the leakage is consequent upon causes over which the Board has no control. the parents take them away.

7099. Then standard 6 is not practically compulsory, although it is nominally compulsory?—The Board would not admit that it does not effectually do its work, I daresay.

7100. But there is a considerable leakage they cannot control between these two standards?—There is, and there is no doubt the Board allows exemption in many cases. And some of them, I would like further to explain, may be of age in the course of four or five months, and therefore they would go out of the school naturally and properly during the school year.

7101. Captain Shaw.—Don't many of them go to secondary schools from standard 5?—I should not think a great many did; our secondary schools are not big enough to account for them, but some do, there is no doubt.

7102. Monsignor Molloy.—Is there a system in Liverpool, such as we have seen in London, of scholarships offered for competition amongst the pupils of the Board schools?—Yes, that is done by the Council of Education, a very valuable educational body here, and it supplements our entire want in that respect.

7103. On what conditions are they allowed to hold these scholarships?—On passing an examination; it is a competitive scholarship.

7104. On gaining a scholarship where do they hold it?—At one of the secondary schools; there are two schools, the Collegiate and the Mechanics' Institute, and for girls Blackburn House in connection with the latter, and Grove-street in connection with the other.

7105. But they must go to one or the other?—Yes.

7106. Are these schools selected by the Board?—No, the Council of Education are responsible for it, and to them the credit is due.

7107. In these schools is the education of a purely literary kind or is it to some extent technical?—It is generally understood the Collegiate is a classical school and the Institute is a little more scientific; one sends its men to Oxford and the other to Cambridge.

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7108. They are both schools that prepare for the universities rather than industrial schools?—They are divided into three; there is the lower school, the commercial and the higher: the scholarship scholars go to the lower school, then they are competent for a scholarship which passes them to the middle and again to the higher and from there to a bursary or scholarship at the University.

7109. Then the natural tendency of the system is to lead these pupils on to a university career?—I would not say that; most of them gravitate back to the elementary school as teachers, but we have never pursued their career.

7110. You have no scholarships specially given to be held in technical schools by the successful candidates?—We have no technical schools in Liverpool in the large meaning of the word, but there are technical scholarships given by the City Council which are available to be held in the same way at these secondary schools and in our University; but we have no technical school in Liverpool yet in the sense of a special building devoted to the purpose. We are building one, a very large one, but at present we conduct the classes in places that are selected as suitable, up and down town, and we have one centre at Islington. The whole thing is at present in embryo.

7111. Mr. Molloy.—In glancing through the Liverpool School Board report for 1894 I observe that there was school accommodation at that time for 98,600 pupils, and that the total on the rolls came to 97,000, since 1894 has there been any increase or decrease either in the accommodation provided or the total number on the rolls, say, up to March, 1896?—We have opened, I think, two new schools since then.

7112. In proportion to the population of Liverpool what number of pupils would you say are in the schools under instruction?—I don't know; we have not had reason to work that out lately; it could be easily got; it is thought to be a six per cent. calculation, but I doubt it myself. In 1896 we largely increased the area of the city so the increase in our school population is not the natural growth of the place: it is consequent upon the added area. But we have not added much, if I may say so, to our school accommodation or to the number of children in attendance beyond the two schools that I have mentioned.

7113. I notice also that the report of your Board takes cognizance of certified industrial schools, and even of orphanages and such schools as those for deaf and blind children, and also private schools: what pecuniary help do you give those schools?—We give none to the private schools: those statistics are merely inserted with a view of the Board's accounting for the position of each child within its area.

7114. Then the conductors of, say, private schools have no objection to furnish you with statistics?—The private schools referred to there are what are known here as private adventure schools; in Ireland, I believe, as hedge schools; they are very poor places, but they are supposed to give education which is satisfactory, and the Board grants the school a certificate, subject to continued good behaviour and efficiency, of the modest character required.

7115. Does the Liverpool School Board exercise inspection over these schools?—Yes, they generally send a clergyman; there is a formal report made on each school from time to time.

7116. That extends, I presume, to the certified industrial school?—No, we don't examine them at all; they are open to our inspection, but I am not aware, at least for a great many years, of any official inspection of these schools having been undertaken by the the Board. We rely very properly upon the managers of these schools doing what is right.

7117. Professor Fitzgerald.—Is there not a Government inspection of them?—Oh, yes.

7118. Mr. Molloy.—I notice also you take cognizance of orphanages: in what way, pray?—We take no cognizance of the instruction; those figures are merely to account for the children who presumably ought to be educated in Liverpool. The Board sums up the attendance at all these institutions.

7119. If pupils from these city schools, including the certified industrial schools, should attend any of the centres for manual work, would you give them instruction free, say, children from a private school or orphanage?—Oh, no, we have our own day industrial schools, the attendance at which is included there as accounting for the total school population, and they receive manual instruction under the Board, but not the scholars attending an ordinary industrial school under private management.

7120. But if a pupil from a private adventure school came to one of your manual schools would you give him instruction free?—No, we would not give it at all.

7121. Then it is really only from a statistical standpoint that you take any cognizance of schools not under your Board?—In the report it is given solely with that object, but we do inspect private adventure schools as I said.

7122. And I presume you do not interfere in any way with the religious instruction given in those special schools?—Not at all.

7123. Or investigate whether religious instruction is given at all?—Not at all.

7124. What is the immediate connection between your School Board and the University College? Do you pay for the teachers who are taught science there?—No, those who have received the instruction in wood work and metal working you are referring to, they paid for themselves in order to qualify.

7125. Then the University College will hold an examination at the end of a certain course, and give certificates?—That is so.

7126. You accept those certificates?—Yes.

7127. Would you allow any of those teachers to take part in the instruction in the central schools without being furnished with a certificate?—I don't think we should now, because it is to our advantage that our teachers should have received such a training as the university confers; but we should have done so in the first instance rather than be without the teachers, and now we supplement it of course by a special examination and investigation on the part of our technical instructor. He hears the applicant give a lesson, for instance, finds out how much he knows about wood work, and what he has done himself, but the certificate is the chief thing no doubt.

7128. Would you allow your special demonstrator in science, if that be his technical term, to give certificates to persons who had not gone to the University College?—He has never been called upon to do that except in connection with those teachers who qualify to give the instruction in their own schools: that of course is a very limited examination.

7129. About what time was the plan introduced of having this special demonstrator and three or four assistants to give this instruction in science?—12th of March, 1877.

7130. What is the precise title—peripatetic science teacher?—Science demonstrator he is called, and there are assistant science demonstrators.

7131. In conclusion, would you allow me to ask you what difference, if any, exists between what I shall now briefly describe and what takes place under your science demonstrator. Under the Irish National Board, so far back as forty years ago, there was a specialist in physics and elementary mechanics; he attended twenty schools in the year, he had three special assistants trained by himself under him, he brought appliances about with him to the various schools. There was also some little collection of science apparatus kept at the schools; and he taught not merely the senior pupils of the school and the teachers in charge but also extern teachers who were allowed to come in and listen to his instruction. Now, is there any substantial difference between that which

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was established by the Irish National Board of Education forty years ago and what you introduced in Liverpool in 1877?—I don't see much difference except that ours is more condensed. We bring the whole force to bear upon a limited area, and we bring as much force as is necessary to affect it.

Professor FITZGERALD.—That was in a limited area in Ireland.

7132. Mr. MOLLOY.—This one demonstrator went all over Ireland?—I think it was too much diffused, but the system you describe is very much the same as the one we have in force.

7133. Would you approve of a number of persons of that character being employed, say, one for each province?—You should have enough, and if you had enough it would improve the make of the butter that comes from Ireland in the course of a generation.

7134. Rev. Dr. WILSON.—Are the funds with which you carry on your operations derived exclusively from the ratepayers of Liverpool?—Practically, yes. We have one prize, that was given us in connection with the National Health Society, of £100.

7135. When your School Board has decided that another school is needed or an existing school should be enlarged have you unrestricted power to expend the money to do this work?—Subject to the approval of the Education Department, we have. Once we get that we can spend the money and demand it from the Council by precept.

7136. Of course you have in Liverpool a large number of private schools at which the children of higher social standing attend. So far as your observation has extended has the success of the manual instruction in Board schools led any of them to introduce the same thing in the private schools?—No, I am not aware of any, but it is rather remote from my experience. I have the pleasure of knowing some of the masters of private schools, but I don't know much of the system as it is in Liverpool, and we have no direct connection with them, more is the pity. Secondary education is quite out of our area.

7137. I would expect that, but the reason I asked the question is that manual instruction is taking such a hold on public opinion that I thought it probable that some private schools of the higher class would seek to adopt it; you cannot say on that point whether they have or not?—No. The public secondary schools, such as the Collegiate, to which reference was made, and the Mechanics, have introduced the manual instruction, but I thought by private you meant schools that were proprietary schools.

7138. I do?—Then I don't know much about that. But it is a common thing for a joiner to teach in these secondary private schools; they have a joiner to give lessons to some of the scholars.

7139. Of course you will have a large number of primary schools not connected with the Board?—Very few.

7140. I don't mean schools of a higher class, attended by children of a higher social standing? *Witness.*—Do you mean that there are other public elementary schools in Liverpool besides the Board schools?

7141. Not public, but conducted by private individuals?—That is what I understood; there are not many.

7142. Rev. Dr. EVANS.—Who was your first director of this manual instruction?—The man who is at present our director, Mr. Pearson.

7143. How did you obtain him?—He was strongly recommended in the first instance by Sir Philip Magnus; we visited London with a view of ascertaining something about the whole matter, and he was exceedingly kind to us, and afforded us very valuable information, and among other things we went to see this gentleman at work, and ultimately he was selected.

7144. How did he obtain his qualifications?—I think he passed the examination of the City and Guilds of London Institute. I thought that was so, but Mr. Hance says not.

Mr. HANCE.—He will tell the Commission himself.

7145. Rev. Dr. EVANS.—My point was this: I wish to understand what steps you took in order to obtain this manual instruction?—That was what we did, and we did it before in connection with the introduction of elementary science.

7146. Did you advertise?—No, we did not advertise in either case.

7147. There was no public step taken at all of any kind in order to obtain a director?—No.

7148. Are there training colleges in Liverpool?—One, and a day training college for male students.

7149. Do those training colleges adopt the manual instruction curriculum, and prepare the Queen's Scholars in it?—The training college proper, Edgehill, is limited to female students; the day training College has no apparatus at all.

7150. Most Rev. Dr. WALSH.—Is there not an important training college at Mountpleasant?—I beg your pardon, I forgot that for the moment; I was only thinking of the college available for boys; there is a very important and universally esteemed training college in Mountpleasant, from which this Board has derived one or two initial policies in regard to its work.

7151. Rev. Dr. EVANS.—Does that training college adopt this manual instruction?—I am not aware that it does.

7152. Could you throw any light on this, that whereas the authorities of the School Board have a strong opinion in favour of manual instruction and elementary science, the training colleges do not seem to have generally, if at all, taken any steps towards preparing their teachers to teach it: why is that?—The School Board has no influence whatever, no connection with the training colleges in Liverpool.

7153. Professor FITZGERALD.—Might I ask do not a large number of the pupils of the day training college attend science lectures at University College?—Yes, they do.

7154. Rev. Dr. EVANS.—All this is, however, rather aside from the point. The point is this, if manual instruction is so very important in the opinion of the Liverpool School Board and of other School Boards, how is it that the training colleges do not take measures to introduce this matter into their curriculum, and prepare the Queen's Scholars to teach it?—We have no influence whatever over the training colleges of the country generally, and we have none whatever over those that are existing in Liverpool. Two of them are limited to female students, the other is merely a day training college affiliated to the University, and therefore, as far as the curriculum of science is concerned, they do give instruction. The University College here, the Victoria University, gives instruction to qualify teachers for giving manual instruction.

7155. I think you told us that passes in ordinary subjects rose considerably since the introduction of science instruction?—They did rise soon after.

7156. How are those passes obtained, through what course?—The ordinary course. The figures are taken simply from the tables in the blue book.

7157. Your schools are not examined under the results system?—I am referring now to fifteen years ago when the elementary science instruction was first introduced.

7158. But your schools are not now under the results system?—No.

7159. How then could you ascertain?—At the period I am referring to they were, and it was possible to compare the results of the period immediately before the introduction of the science instruction with a reasonable period after its introduction, and that was done.

7160. And the increased number of passes was exactly under the same system of testing the progress of the pupils?—Yes, as before.

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7161. Captain Shaw.—As regards manual instruction, it is generally all over England taught in centres, and the manual instructor is a person who does not generally take part in the school teaching in the rest of the school. Therefore if the training college prepared them they would have to prepare manual instructors only in one subject?—That would not do.

7162. That is the system that prevails now, so that training everybody as a manual instructor is not of practical utility?—No, the manual instructor is wanted only for manual instruction.

7163. Mr. Struthers.—But you employ trained teachers as manual instructors?—Yes, in preference. Afterwards they have to devote their whole time to it, but I don't think you could expect a man to qualify himself limiting his collegiate course to the subjects required for giving technical instruction.

7164. Chairman.—Do I understand you to mean that a person who teaches something in manual instruction would not teach anything else?—He does not teach anything else with us.

Chairman.—I observed in Birmingham one teacher who was giving a lesson in wirework and later on in the morning I saw he was teaching singing.

Captain Shaw.—We are only referring to wood work now.

7165. Most Rev. Dr. Walsh.—You spoke of the help given by the City Council of Liverpool in the establishment of scholarships in connection with technical instruction. Can you say out of what fund these scholarships are founded?—From the Excise contribution.

7166. That is the money that has come to be known in Ireland as the whiskey money?—That is so.

7167. This then is one of the uses made of it in Liverpool?—Yes.

7168. To enable promising pupils of the primary schools to pass on into schools of a higher grade in connection with technical education?—Yes.

7169. You have also grants from the Education Department for working this practical instruction in your English schools?—Yes.

7170. And you have grants also from the Science and Art Department?—Yes.

7171. Furthermore, in the Board Schools, you are at liberty to draw upon the rates for the work of these departments?—Yes.

7172. Suppose you were not at liberty to draw upon the rates, or that you had not these special funds to establish this special work, would it have been possible for you to do it?—I am afraid not.

7173. I take it for granted it would not. Now, let us apply this to the training colleges; can you say whether there is any special fund placed at the disposal of the training colleges for the introduction of special training in practical work, manual instruction, and so forth?—I never heard of such a fund.

7174. You can take it from me that there is not. The training colleges simply have the fund they had twenty years ago, before this was introduced. Do you think it would be possible for training colleges—no matter how highly they thought of this department—do you think it would be possible for them to introduce it without special help and special funds being placed at their disposal?—I don't think it would; there is an initial outlay which of course they would have to find.

7175. So that the fact of the training colleges not having established it, would not go to show that they don't attach the highest possible importance to this branch of work?—Quite so.

7176. Rev. Dr. Evans.—As arising out of what his Grace has just asked you, are you aware that your director of manual instruction received his qualifications in Westminster Training College?—Oh, perfectly.

7177. Though there was no fund specially to prepare Queen's Scholars?—I did not quite take the meaning of your question when I answered so quickly. I knew that he had been trained at Westminster, and that he was a qualified teacher; but I remember now I think there is some kind of special certificate that they get there, but I am not aware that they have any apparatus at Westminster. Have they benches?

7178. Most Rev. Dr. Walsh.—The main point is this, the State has not made any special provision for this branch of work in the training colleges?—No.

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Mr. Edward M. Hance, Clerk to the Liverpool School Board, examined.

7179. Chairman.—You are clerk to the Liverpool School Board?—Yes, my lord.

7180. I think you are prepared to give us some evidence with regard to the successive stages of the development of the Board's scheme for science and art and manual instruction. Perhaps you would do so?—My evidence is only intended to be supplementary to that which Mr. Oulton has already given, and therefore possibly there are several points in my memorandum with which you have already sufficiently dealt.

7181. Then perhaps you would pass them over?—I think, perhaps, it may be well if I just state the connection which has now been arrived at, rather than the successive stages by which we did arrive at it. To-morrow you will see the work in actual operation. It has now by the result of twenty years become a connected whole, commencing so far as the manual instruction is concerned with kindergarten in the infant schools, and finishing with the woodworking and metalworking, and in one workplace with machine drawing and clay modelling. The science side in like manner begins in the infant school with the object lessons; it is continued in a special series of object lessons through the lower standards; in standard four there is a preliminary series of lessons under the direction of the science director, and then in standard five to standard seven there are the ordinary itinerant lessons, followed in ex-standard seven with classes in connection with the Science and Art Department, and concluding with the organised science school, which you will see on Wednesday afternoon. This system has been arrived at by different stages during the course of the last twenty years.

7182. With regard to the development of the system of the training of pupil teachers and assistant teachers, have you any observations to make?—One of the principal difficulties in introducing a system of science instruction in connection with elementary schools was the very imperfect training which the teachers had received in that subject; and to remedy that in part, at the same time that science instruction was introduced into the Board schools science instruction was also introduced into the curriculum of the young people who were being trained for teachers. The system of class instruction for pupil teachers was one of those points which Mr. Oulton referred to as having been derived from the arrangements at the training college at Mountpleasant. The pupil teachers in the Roman Catholic schools of Liverpool were very considerably better prepared, as was shown by the results of the scholarships examination, than those of any other class or school in the town, and on the explanation being sought it was found to be that the teachers in connection with Mountpleasant had the advantage of collective school teaching instead of individual teaching which obtained in all the other schools of the town. Following that precedent the Board established central classes for their teachers.

7183. For females and males?—First for females and subsequently, after the classes for females had

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been well established, for males. And in the curriculum of those classes they introduced science and art teaching both for boys and for girls.

7184. Will you let me ask you first, what they taught the girls, and then what they taught the boys?—The science instruction of girls was first physiology alone, animal physiology, but it has been developed of more recent years and physiography is introduced.

7185. What is physiography?—A general study of natural laws, I think, and also recently we have tried a certain amount of mathematics for girls. With regard to the male pupil teachers the curriculum includes physiography and physics.

7186. Do they teach chemistry to boys or girls?—They teach chemistry now to the younger teachers before they commence their ordinary apprenticeship. What we call the candidates and the first year pupil teachers receive instruction in chemistry.

7187. All the pupils attending these classes are pupil teachers?—They are all pupil teachers or assistant teachers who have not yet obtained their certificates.

7188. Are there any stipendiary monitors included?—There were But the stipendiary monitor is now called the candidate for a pupil teacher.

7189. Do they have whole time or half-time classes?—Half-time classes.

7190. That is, they get less instruction than the fully developed pupil teacher?—No; they give less instruction. The pupil teacher is a person who is engaged for most of his time teaching in the schools, and it is only out of school hours he ordinarily receives instruction; but the candidate and first year pupil teacher are half-timers, and only give instruction half the day and receive instruction the remaining half.

7191. I don't think I quite follow you. I can follow you in the last part of your answer; the candidate receives instruction half his day and gives instruction half his day. But I understand you to say that the pupil teacher is receiving instruction for the whole of the day when he is receiving it, or giving instruction for the whole of the day when he is giving it?—No; the pupil teacher is giving instruction almost the whole time that the schools are open, and it is only out of school hours, or to the extent that he is relieved of the work of the school, that he receives instruction during the day time.

7192. That is, in extra hours and in central classes?—That is so.

7193. I see you have an observation about half-time classes for the first year's female pupil teachers. Would you explain that?—The system of half-time was introduced first of all with regard to the stipendiary monitors, or as we now call them, candidates. It was then extended to the female pupil teachers, first year pupil teachers, the remaining pupil teachers do not receive as much exemption from school time as the first year's. The second year's pupil teachers receive two half days per week, and the remaining pupil teachers, until recently, only received one; but now the recent development is that they also are to receive two half days' exemption from school work per week.

7194. What time have they for individual private study?—On the half days that they are exempt from attendance at schools, they are collected at what is called the pupil teachers' college, and have there opportunities of private study under the direction of a member of the Board's inspectorial staff.

7195. Have you any observations to make with regard to experimental classes for male ex-pupil teachers, and preparation for University College?—The goal which a large number of our more promising male pupil teachers now set for themselves is the University course terminating with a University degree, and during the last two years the interval which elapses between the time when the Queen's scholarship examination has been taken and the time for their entering into the training college has been utilised by special classes preparing them for the subjects of the University career. That has been quite a recent development, as a sort of completion of the arrangement for the instruction of teachers

7196. What are the objects of the introduction and development of this class of instruction that we have been talking about?—The first object, the object of introducing science instruction, was the quickening of the observing and reasoning faculties of the children; that in the manual instruction would be the training of the hand and eye to work together, as a preparation for the later technical instruction which is now being so largely given throughout the town; and also one of the principal objects which it was expected to accomplish thereby was the prolongation of the school life of the ordinary scholar.

7197. Do you attach importance to retaining scholars longer at school?—This prolongation of the school life of the children was almost necessary to counteract the effects of the Board's own work in other directions. Mr. Struthers asked a question upon that point. The age at which the children passed the several standards was progressively falling, and the result was that unless they could be induced to remain after they had attained the standard of compulsion, they were actually, by reason of the success of the ordinary instruction, being qualified to leave school at an earlier time than they had been previously. The effect of that would be that if the child left school at so early an age he had additional time to forget what he had already learned, and as that would have been learned at a younger age than previously, it also tended to sink in less deeply than previously.

7198. Then what do you find to be the effect of the introduction of this class of instruction?—I think the statistics that we shall lay before you, my lord, will show that it has had a distinct effect in inducing parents to leave their children at school.

7199. Has it given them increased efficiency as regards ordinary subjects?—Yes, and therefore it has immensely increased the efficiency of the hold which the ordinary subjects have upon the scholars.

7200. And has it had a tendency to counteract the objection to manual employment?—I think that is very distinctly a feature of the work.

7201. What arrangements have been found most suitable and economical for instruction as regards elementary science?—The system, which I think Mr. Oulton has explained to you, of working from a common centre and having itinerant teachers acting under the direction of the Board's science demonstrator.

7202. That applies also I suppose to cookery, manual instruction, and laundry work?—In point of fact it applies to the more advanced science instruction except that, instead of the teacher going to the school in the more advanced work, the scholar goes to the teacher.

7203. That is to say, you have appliances which you could not move about: you have laboratories and things of that kind which you cannot move, and therefore, the school has to go to the teacher instead of the teacher going to the school?—Yes.

7204. That applies to laundry and cookery?—That applies in part to cookery: in some of our schools we have class rooms which have been fitted up to enable cookery lessons to be given in them without completely withdrawing the class room from the ordinary use of the school; in other places we have centres which are given exclusively to cookery, and to which girls go from their own schools; so we have both systems at work in connection with cookery—but as to laundry work, we are obliged to have a room and appliances solely for that purpose.

7205. Could you give us any information with regard to the cost of these several subjects, first, as regards teachers, and secondly, as regards appliances?—With regard to manual instruction, I have the figures.

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7206. Could you put it in more conveniently than orally?—I think I could give the cost generally, but I think it may be sufficient to let you know that it does not cost very much, and so far as the manual instruction is concerned the total cost upon the average attendance was about 17*s.* per head.

7207. Professor Fitzgerald.—Of those attending that subject?—Of those attending that subject.

7208. Chairman.—17*s.* per head per annum?—Yes.

7209. Professor Fitzgerald.—That is not the expense of installing, but the expense of working it?—That is the annual expense of working it.

7210. Chairman.—Does that include interest upon the cost, first of all, of the room, and secondly, of the appliances?—No.

7211. If this system were to be introduced into Ireland, those things would have to be provided in the first instance, and in some way they would have to be capitalised, and interest calculated in addition to the annual cost of instruction. Could you not give us what the total cost per head would then be expected to be?—I think I can. You will see on going to the buildings that they have been constructed upon the most inexpensive method possible, firstly, because the Board did not feel that it had sufficient knowledge to justify it in expending a large sum of money in erecting permanent buildings, and secondly, because we found that the temporary buildings when erected were so completely suited for their purpose that the Board has never found it necessary to replace them with more expensive buildings. The cost of the earlier ones, the buildings limited to wood-work, is about £500, and they are able to accommodate some 720 children each during the course of the year: therefore, you will see that the initial cost is considerably under £1 a head upon the number of children.

7212. Of course in Liverpool you are dealing with large schools, whereas in Ireland the great majority of the schools are small schools, and in providing buildings for a small school you would be providing it for a smaller number of children, and therefore the cost per head would be *pro tanto* increased?—Our centres would not in that way be made more expensive; they would simply serve a larger number of schools.

7213. Your centre does not serve a single school?—No.

7214. That would be the difficulty in Ireland: the schools are so far apart it would be difficult to group them?—That is in country places, but not in towns and a few large centres of population. But the precedent that you would have to seek for Ireland would I think rather be found in Wales than in the large towns of England: they have had to deal with all these difficulties in the rural districts of Wales in connection with secondary education, and they have solved them I think very largely.

7215. As regards manual instruction?—Yes, by sending itinerant teachers; instead of having centres they have an itinerant teacher.

7216. Do you know how they manage about rooms?—No; I am afraid I cannot give you definite information on that point. Then I think also I might mention that a full centre, such as you will see tomorrow, costs something like £1,500, with the metal working, as well as wood working and machine drawing and such like.

7217. Professor Fitzgerald.—How many pupils are there using that centre?—It is capable of accommodating—I cannot give the exact number—it is capable of accommodating 720 for woodwork, and about 300 for metal working and other similar things.

7218. That is about 1,000; then the cost is about £1 10*s.* a-head?—Yes, but of course it will serve for many successive generations.

7219. Chairman.—Can you give us any information with regard to your source of supply of suitable teachers?—Might I add, my lord, before I pass to that question, just a little on the subject of the cost. I said that the cost of this instruction was practically 17*s.* per head, and that is the fact so far as the working of the last year is concerned, and it includes a small sum as the sinking fund upon the original cost of the buildings; but the average attendance during the past year was far below the capacity of the buildings, and if the buildings had been utilised to their full capacity, the expenses would have been considerably smaller, because the salary of the teachers and of the other officers connected with it, the costs of fuel and lighting, and every other cost, except that of the actual materials used, would have been distributed over a larger number instead of over the number that there actually was; and therefore it probably would have been reduced by at least one-third, and probably more than that if the buildings had been used to their full capacity.

7220. Now, with regard to the question I asked you about the source of supply of suitable teachers?—The teachers, so far as elementary science is concerned, are almost entirely derived from persons who have been public elementary school teachers, but have devoted themselves, in preference to the ordinary work, to that of science. With regard to the manual instruction centres, which no doubt are the points on which you will find the greatest difficulty, that was where we found the difficulty of getting suitable teachers in the first instance. As has been explained to the Commission, the Board was very fortunate in obtaining the services of a gentleman like Mr. Pearson, who had sufficient foresight to prepare himself for a work that was naturally coming, but which had not at that time come within the sphere of ordinary elementary work. But since that time a great number of teachers have qualified themselves, and in London the City and Guilds of London Institute has been laying itself out to afford facilities for teachers to qualify themselves in this way. And in Liverpool, and in one or two other of the large towns of England, the local university colleges have been offering similar facilities. In Liverpool we are especially fortunate in having probably one of the finest engineering schools in the kingdom, and in connection with it the professor of engineering has organised Saturday classes for the assistance of elementary teachers desirous of obtaining the necessary qualifications.

7221. What special preparation have you for teachers?—The university college has this special class on Saturdays under the supervision of the professor of engineering.

7222. Who is he?—Professor Hele Shaw, who has recently been given the degree of LL.D. by one of the Scotch Universities; they have started classes in wood work and in metal work and at the end of a course of one or two years of this work, they hold examinations and grant certificates. I think now the supply of teachers from those sources is fully equal to any probable demand in the immediate future, so if Ireland desired to introduce this work I think they would have very little difficulty in obtaining suitable teachers. The one point I would try to emphasise in this connection is that you should employ teachers and not mechanics. Mechanics have no power of managing large numbers of children, whereas trained teachers, as soon as they obtain the knowledge of the subject, are able then to apply all their general principles of teaching to this new subject, and to impart the knowledge to far larger numbers at one time and in a far more effective manner than mechanics ordinarily can; but that of course is to be taken with a qualification. There are mechanics who are much better than teachers and who can give this instruction, perhaps under guidance, pretty nearly as effectively as the ordinary teacher can. In the service of this Board there are about ten or eleven instructors in this subject, of these three are mechanics, the remainder have been trained teachers.

7223. Now, with regard to voluntary schools, are pupils from them admitted to instruction, and if so, at what cost?—At present voluntary schools cannot be admitted legally to the advantage of these institutions except on the condition of their paying the cost price. In calculating that cost price we have simply calculated the salaries of the teachers and the cost of the material used, and accordingly we are able to place the advantages of these centres at their disposal at a price considerably below that which I have quoted to you to-day as the actual working expense to us.

7224. Professor FITZGERALD.—What is the price?—I think the expense is 6*s*. 8*d*. per lesson.

7225. CHAIRMAN.—Would you divide it under the different heads?—All these special forms of work have been placed at the disposal of voluntary schools upon the terms that they actually cost, that the extension cost, not what the original plan cost at all, but merely what the extension of this to the voluntary schools itself cost. Now, with regard to manual instruction, it is 5*s*. per lesson for a lesson of one and a half hours, or 6*s*. 8*d*. for a lesson of two hours, to classes consisting of not more than thirty-six boys. The grant from the Science and Art Department, if it is fully earned, more than pays the charge which the Board make the voluntary schools. The majority of the schools only take one and a half hour lessons, that is what we ourselves take, that is 5*s*. per lesson. For forty lessons in the year it amounts to about £10. If the whole thirty-six scholars are qualified they can earn on an average about 6*s*. 8*d*. per child, that is £12 a year, and the charge of the Board is £10 a year, so the Science and Art Department grant covers the cost of the instruction.

7226. Judge SHAW.—There is one point I did not quite grasp in your evidence, that is about the graduated series of elementary science lessons, extending from standard four up to standard seven and ex-seven; and then you said above that there was an organized science school; what is the nature of that school?—The organized science school is the outgrowth of a group of six schools. It was an effort at federation of schools and at showing how by the use of federation, facilities could be brought to scholars in elementary schools which could not be done in connection with these schools separately.

7227. Are those six Board Schools?—They are at the present moment; but when the federation was started it had for its object, amongst other things, the giving to voluntary schools the use of these higher facilities, and when this scheme was started one of the schools that formed part of the group was a voluntary school. The object was that whilst letting children remain in connection with their own schools, giving them at a common centre teaching which could not be given to each separate class. It was thought that would probably be better than separating them from their own schools, partly because of the discouraging effect which it would have upon the ordinary teachers if all their bright scholars whom they had advanced to the highest point in their schools were to be taken away for the glorification of somebody else.

7228. Then this organised science school, as I understand, is a school specially organised for the teaching of science, into which pupils of a high grade are drafted from several schools?—That is so.

7229. And they go there at certain hours of the day on certain days of the week?—They did. This present year they are withdrawn entirely from their old schools.

7230. What is the nature of the instruction given?—It is the curriculum required by the Science and Art Department for an organised science school; thirteen or fifteen hours a week are devoted to subjects of a scientific character, and the remaining time is devoted to literary subjects. I think you will be more interested to see the thing in operation almost than to hear it described. I hope you will have an opportunity of seeing it pretty thoroughly on Wednesday afternoon.

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7231. Except in this organised science school, the higher instruction that is given in elementary science in the schools is given by peripatetic teachers?—Up to standard seven. In standard seven they begin a class of work in connection with the Science and Art Department, the appliances of which cannot be moved about, and therefore the children have to move to the centre, instead of, as in the lower standards, the teacher and his appliances moving from school to school.

7232. Why is it that the ordinary teachers in the schools don't give this elementary science instruction; is it because they are not competent or because their time is otherwise employed?—Partly both, but principally because when we introduced the work, teachers generally were not qualified to give these subjects under the conditions that it was thought desirable to give them, that is to say, with apparatus and by teachers who were specialists in the work. That is one of the points I wanted to bring out. We have trained an increasing number of teachers who have acquired during their training a sufficient facility and grasp of science to be able to take this subject in their own schools.

7233. And if a teacher who teaches the other subjects in a school is able to give this elementary science instruction, do you not think it is a better system?—The Board is trying as much as it possibly can to develop that form of teaching, but though it is given by the teachers in the ordinary school, it is still under special supervision and direction of the Board's science demonstrator, who is the director of the whole of this work.

7234. Is this elementary science instruction in standards five to seven compulsory on all the boys in the school?—It is a part of the ordinary curriculum.

7235. And every boy in the school must take it?—Every boy must take it.

7236. Is the manual instruction at the centre also compulsory on every boy?—It is compulsory unless there is special exemption, and out of 5,000 boys in the Board's schools, I don't think five are exempted.

7237. So the elementary science instruction and manual instruction are carried on *pari passu* for every boy in the school?—Yes, as an integral portion of the teaching in the school.

7238. You don't think it is too much for the boys?—On the contrary, it has a quickening effect upon the children in the standards that take this work, and it also has this great advantage—it tends to prolong the school life of the children in the ordinary schools. In this way by giving up two or three hours, we will say, a week to instruction of this kind, which the parents recognise as being of practical value, we are enabled to induce a large number of children to remain perhaps six, twelve, or eighteen months longer at school, and therefore to get something like twenty-seven hours a week of instruction for twelve or eighteen months, which we should not otherwise have got at all; it is what you may call a sprat to catch a whale.

7239. What branches of science are taught by these peripatetic teachers?—The subject that we are teaching in the lower standards by the peripatetic teachers is mechanics nominally, but it is mechanics developed and extended in the direction of physics.

7240. Is there any chemical teaching?—Not in that standard.

7241. Do you teach electricity and magnetism?—Not directly. There is of course a certain amount of physics taught in connection with mechanics, but mechanics forms the basis of the instruction for the boys: for the girls it is otherwise. But this was introduced under the inspiration of the late Professor Huxley, who was asked to advise the Board as to the subject which in his opinion would be most calculated to develop the reasoning and the observing faculties of the scholars, and he it was who chose from among the specific subjects that then appeared in the Code, this subject of mechanics; but he also gave the advice that it should be developed, as I said, in the direction

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of physics, and he recommended the gentleman who was appointed to do this work.

7242. Is navigation taught as a subject in the elementary schools?—Not in Liverpool.

7243. I suppose it is a subject of technical education in technical schools?—There seems to be some special difficulty about teaching navigation excepting in inland towns. Students in towns like Liverpool are engaged in the practice of navigation, and that interfered with their having time to devote to a connected study of it, but the City Council has recently introduced a school of navigation.

7244. Mr. Oulton said a great number of the boys took to seamanship?—Yes.

7245. Would you not think it important to lay some foundation in their school life of a scientific kind for the practical navigation they would do afterwards?—Many efforts have been made in Liverpool to do that. Hitherto it has been proved a failure except in this school established by the Corporation.

7246. Is elementary astronomy taught at all?—No.

7247. Professor FITZGERALD.—There are classes in Liverpool surely for navigation?—There is this school of navigation now, and for some years past there were classes under the committee of which Mr. Fitzpatrick was the secretary, for giving persons who are engaged at sea practical navigation.

7248. Mr. STRUTHERS.—For obtaining masters' certificates?—Yes, in connection with the Board of Trade.

7249. Rev. Dr. EVANS.—Do the voluntary schools include manual instruction in their course of teaching?—A certain number of them do. Out of the scholars who are attending our schools at the present time we have 5,769 boys for whom we are providing at the present moment; of these 901 are from voluntary schools.

7250. Is manual instruction included in the course of the voluntary schools?—To this extent, 901 boys.

7251. Do the managers of those schools take kindly to the manual instruction?—I think a considerable number of them do, and I think a larger number would, but for the practical difficulties in the way.

7252. You mean by the practical difficulty the want of money?—Yes, I think the want of money is the principal practical difficulty.

7253. It is not any lack of appreciation for manual instruction, but it is the want of ability to carry it out?—I think you may say that applies, not only to manual instruction, but to other branches of higher instruction.

7254. What proportion of your teachers have been through training colleges?—I am afraid I am not prepared to answer that straight off, but I can say that the great bulk of our teachers have been trained: probably nine-tenths of the certificated teachers are trained teachers.

7255. I believe it is true that in Mountpleasant training college practical subjects have received a great deal of attention, and that they have practically led the way?—I should not be at all surprised to find that that is the fact.

7256. Did they not give you a stimulus themselves?—They gave us a very strong stimulus in the matter of teachers

7257. Could we get all training colleges to do as they have done, would not a very valuable impetus be given to training all over the country?—I think if every training college was as good as Mountpleasant, we should have a very valuable class of teachers.

7258. Do you think if your teachers were allowed fees for manual instruction, a larger number would be disposed to take it up; I take it they are not paid extra for it?—Our teachers receive a small consideration, not sufficient, I think, to induce them to take the subject up if they did not value it themselves: it is about one-eighth of the grant that is received from the Science and Art Department, that is allowed them as a little bonus.

7259. Does any inconvenience arise in connection with the working of the Liverpool School Board, in consequence of the dual relationship of your schools to the Education Department and to the Science and Art Department?—No, I don't think it does with regard to us. I think there is an advantage in the dual relationship for voluntary schools; it will cease probably to be so when this new Bill has become law, because what is known as the 17*s.* 6*d.* limit will cease. Hitherto the 17*s.* 6*d* limit has operated rather in the direction of encouraging these extra subjects, because the Science and Art Grant received its income from other sources to be set against the Government Grant under the 17*s.* 6*d.* limit.

7260. Has the Liverpool School Board anything to do with the appointment of the inspectors?—The Government inspectors? No.

7261. Do you employ any inspectors of your own?—Yes, we have a full inspectorial staff; we have a senior inspector and his colleague, and a lady inspector, and both a lady and gentleman assistant inspector.

7262. Do the inspectors that are appointed by the Liverpool School Board look into all the subjects that are taught in the schools?—Every subject.

7263. Practically they do the same thing as the Government inspector?—They do even more than the Government inspector, because they inspect religious knowledge.

7264. Does the Liverpool School Board, in the selection of the gentlemen who are to act as its inspectors, favour those who are in sympathy with manual instruction?—I don't think they have had that specially in view in their appointments, in fact manual instruction I think has come to the front since they appointed any of their present staff.

7265. So that it is not with a view of fostering and developing manual instruction that the selection has been made in the appointment of inspectors?—No, as a matter of fact, our senior inspector showed his interest in the subject by voluntarily taking up the course at Nääs. I think he is here to answer for himself.

7266. Could we have an access to the reports of those inspectors?—Certainly, if you desire it.

7267. I take it that it is your experience that other subjects have been helped on rather than injured by the manual instruction?—I think that is distinctly the case, but their reports would hardly have that in view. They will probably give you their own impressions on that subject if you ask them when they appear before you.

7268. Monsignor MOLLOY.—You said that nine-tenths of your teachers were trained. Am I to understand that they were trained in the Government training colleges?—That is so.

7269. The Board has also a system of training pupil teachers?—Yes.

7270. Would these be included amongst the teachers who were trained in the Government training colleges?—No; they are preparing for a course of training in the Government training colleges; the object of their instruction under the Board is to place them in these training colleges.

7271. Your course of training then prepares them for the Government training colleges?—That is so; they come to us as children of 14 or 15 and remain until 18 or 19 years of age. They go through the Queen's Scholarship examination; if they are sufficiently successful in that examination they secure entrance into the ordinary Government training colleges for two or three years, as the case may be, and then they come out as fully certificated teachers.

7272. Mr. STRUTHERS.—Are grants paid for passes in specific subjects in ex-seven from the Education Department?—No; they are not paid at present for ex-seventh.

7273. Are any grants paid from the Education Department on any children beyond the seventh standard?—Yes, if they are under 14, but the majority

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of ex-seven are over 14 years of age. In these statistics that I have here, out of 48 ex-seven scholars who remained to the end of the year, the full twelve months, there were 18 under 14 years of age.

7274. But the 48 that remained throughout the year implies a considerably larger number who began the year?—That is so: standard seven gave us 558, and of those appreciably over 400 were under 14 years of age.

7275. Then if you arrange for the education of children over 14 in your schools, and beyond the seventh standard, you have no special encouragement from the Education Department to do it?—We have no encouragement at all.

7276. So you naturally seek about for some other source of income?—Yes.

7277. And you receive grants from the Science and Art Department for these children if you have an organised science department?—That is so, and we also receive encouragement from the City Council.

7278. What is the nature of that encouragement?—Grants under the Technical Education Act. They cannot give a grant in connection with any child in the standards, but beyond the standards they do give a capitation grant and other assistance.

7279. But the general effect of the regulations of the Education Department is to limit the Board's education to the education of children under 14, and not beyond the seventh standard?—Whichever is lower; if a child has not passed the seventh standard then he may remain on to any time he likes.

7280. If you were to institute a commercial school, which might be a useful thing in Liverpool, you would have no special inducement from any public department to do do so?—Except the City Council.

7281. Their grants would be applicable to a school organized to teach commercial subjects?—That is so.

7282. I should like this point about the age at which the children pass the standards cleared up a bit. Have you any statistics to show whether the age at which children pass the fifth standard is rising or falling?—My statistics show a rise and fall. Up to the time when the Government dispensed with the age qualification there was a steady fall in the average age in the several standards; we more and more approximated to the Government standard for age. Since that time there has been distinctly a step in the other direction, and the average age in the standards, left, as it were, to the choice of the teachers, has risen.

7283. So that children who pass standard five are older on the whole than they were a few years before?—They are older than they were.

7284. That is to say they have more time to overtake the work of the standard?—Some of them have; sufficient to affect the average.

7285. So that there is reason to suppose you have some extra time to devote to extra subjects such as manual training?—No; I should say the general effect was the other way. From the fact that our children do not get into the standard quite as early as they did before they have not the same amount of time at their disposal to give to extra subjects, because the time when they must earn their living has not been postponed correspondingly.

7286. They have a sufficient number of years to overtake the work of standard six, consequently they must do it more leisurely?—Yes.

7287. Therefore they must have more time to spend on extra subjects?—I don't think that is the working of it I think it is really that the children who were not capable of keeping pace except under undue pressure with their brethren have been eased now, and take the instruction at their own pace.

7288. Do you think it better that the children should pass the simple three R's in standard five at the age of eleven, or that they should not pass this until twelve, and add on some amount of general training of the manual instruction and scientific character?—I should think the latter, if that were the practical choice; but I don't think it is, because these subjects are not introduced until they have reached standard five.

7289. But you have a certain amount of hand and eye training in the lower standards?—That is so.

7290. Then the more leisurely progress in the lower standards has enabled more time to be given to this hand and eye training?—I don't think it has; I think the more leisurely progress is really this, that the children who are below the average are not now pressed as they used to be in excess of their powers.

7291. But they don't confine themselves as they used to do to the three R's; they take up more subjects?—I don't think that is the effect of it, but the curriculum has been widened undoubtedly. With regard to the more leisurely rate at which the standard is taken, that has not had any effect on it. I think myself that the principal thing that has enabled the wider curriculum to be introduced is the more regular attendance that has been secured. When a child only made 250 attendances out of a possible 450 it is quite clear he could not do as many subjects in the course of the year as he can now when he makes 400 attendances.

7292. But the wider curriculum in your view is a desirable thing, even if it should postpone the age of passing the standard?—Decidedly.

7293 You mentioned that we might get some information in Wales as to the method of introducing manual instruction into rural schools: do they have manual instruction in primary schools in Wales?—I think it is principally in secondary schools; the reason I quoted Wales is because it is a country of more sparse population than England, and therefore perhaps would show you a solution of the difficulties with which you in Ireland will have to deal.

7294. CHAIRMAN.—Of course that would only be the case if the manual instruction has been introduced in connection with primary schools?—Well the same difficulty applies to the sparse population whether it is primary or secondary, but of course it would be much better if it was in primary.

7295. I was looking rather to the point of what we could see, if we went to Wales, in primary schools where manual instruction is given?—That is not within my knowledge.

7296. Mr. STRUTHERS.—But you think we might find something in the secondary schools which would help us?—Which would suggest to you a solution.

7297. Your statistics say, that in 1891, 2,137 children were presented in standard five, and in standard six, 1,392: is it your experience that that proportion is diminishing?—Yes, in recent years.

7298. Rev. Dr. EVANS—With regard to the age of the standards, I should like to get a little more light. I understood that we were told earlier by Mr. Oulton that the pupils passed the standards somewhat earlier than formerly, but now I rather gather from your answers that it is a little later?—For a great many years it was as Mr. Oulton told you: the age was steadily falling, but since the revolution, since the grant of what is called freedom of classification, there has been a slight tendency the other way. For instance, when we first took statistics only about twenty percent. of the children passed the standards at the ages which the Education Department considered appropriate to their standards: that steadily increased until it was between fifty and sixty per cent. Then come this removal of the compulsory advancement of the children, and from that the numbers have fallen again from fifty-five per cent. to about forty per cent., so that it is true that we are now very much in advance of what we were twenty years ago, but we are not quite equal to what we were seven or eight years ago.

7299. Mr. STRUTHERS.—Then is this diminution of numbers of six, as compared with five, less marked now than it was some years ago?—I think it is decidedly; and let me point out to you that it is standard five of the preceding year that makes standard six of this year. As a matter of fact there is not much difference

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between standard five of last year and standard five of this year. It was 2,137 last year, and out of that 1,392 go on to the end of sixth at present. You must remember that a very large proportion of these children in standard five were above the compulsory age

7300. But these same causes apply to former years. I want to know whether this proportion is increasing, the proportion of children in five who stay on to six?—I give you two corresponding periods, in 1884 there were 1,324 children who passed standard five, in the following year 1885, there were 600 passed standard six, that was not quite fifty per cent.; but this last year we had 2,137, and of that 1,392 or practically two-thirds of the children passed standard six. The difference in the ten years is nearly fifty per cent., that shows there is a steady increase.

7301. That shows that more children are staying on to sixth than formerly?—Yes, sixth, seventh, and ex-seventh.

7302. And among the causes which may really explain the staying on of children is the giving of attractive subjects?—When I had the honour of appearing before the Royal Commission, I was asked why children left school so early, and my answer was that I thought they were starved out of the schools in the upper standards: there was no encouragement given to them, the schools were not laid out to encourage their remaining, and the curriculum was as meagre in the seventh standard as it was in the sixth standard. But by extending the curriculum in the sixth standard you have made it more worth the while of people to keep their children at school, and by the introduction of science and manual instruction you have appealed to the practical interest of the parents: they say this is something worth stopping for.

7303. So to secure prolonged attendance at school, it is important to introduce subjects of an attractive character?—Yes, subjects that parents can appreciate.

7304. You mentioned clay modelling; I did not understand at what period it came in; I understood it was in the later standard?—We have clay modelling in the infant department, and then it disappears, and reappears only at the end, but then it is artistic modelling latterly; at first it is very simple.

7305. Is clay modelling at the finish of the course taken for the Science and Art Department?—It is one of the subjects recognised by the Science and Art Department.

7306. Captain SHAW.—It is not taken as an art subject?—No, I don't think it is sufficiently developed yet really.

7307. Mr. STRUTHERS.—Under the new regulations in the Code, pupil teachers must not teach more than half their time; you said you only let them off two attendances a week at present?—I am afraid you are speaking of the Scotch Code: they must not work more than twenty hours.

7308. We have heard of the day training college; is that in connection with the Liverpool College?—The University College.

7309. In organic connection with it?—In organic connection with it.

7310. Captain SHAW.—Do you take object lessons and suitable occupations as a class subject in the lower standards?—Yes.

7311. Is it the first class subject in all the Board schools?—I don't think we make any distinction between first and second; we take two class subjects in every school.

7312. You are supposed to make a distinction according to the Code?—That is only where a curriculum is rather more meagre than it is with us. The two class subjects have been portion of our curriculum for twenty years.

7313. Is there any provision for paying for this in the fourth standard; object lessons and suitable occupations are confined by the Code to the first three standards?—In the fourth standard there is a preliminary course of instruction in mechanics by the teachers of the school, preparatory to the work of the specific subjects.

7314. It is paid for as a class subject?—I am not quite sure.

7315. When you selected this course of mechanics was the syllabus the same for class subjects and science as it is now?—No, there were no class subjects at all then.

7316. Does your syllabus conform with that of the Code?—Not quite.

7317. Have the Board considered the H syllabus at all as defined in the Code as appropriate for instruction, the course in experimental science?—Not yet: the inspectors and myself have had that under consideration.

7318. Could you tell us the time which is devoted in the week to the subject; you take drawing in the lower standards, object lessons in science and hand and eye training?—You will get that information better from my friend Mr. Bott; the detailed working out of the time table of the infant school does not come to me.

7319. Mr. REDINGTON.—You said that the total cost of the manual work per child was 17*s.*?—Yes.

7320. Would you kindly give me the details?—You will take that with my qualification. It is only because the schools are not fully occupied that it costs as much as that per head: the teachers were 9*s.* 0½*d.*, the materials, 1*s.* 3¼*d.* the other charges of maintenance, 5*s.* 4½*d.*

7321. That is maintenance of the buildings?—Yes; that includes rates, taxes, insurance, lighting, heating and the salary of the caretaker and the custodian of tools.

7322. Does the repair of tools come under the head of materials?—No, under this general head of maintenance. The sinking fund upon the building and the fittings amounted altogether to 1*s.* 2½*d.*

7323. Don't you get from the Science and Art Department 6*s.* 8*d.* per head?—Yes, this is the total cost, not the net cost.

7324. So the net cost is 6*s.* 8*d.* less?—Yes, fully 6*s.* 8*d.* less.

7325. That would leave the net cost about 10*s.*?—Yes.

7326. And you say if the classes were fully developed it would be much less?—Yes. The total accommodation in these schools is for 720 children, practically double the attendance here; therefore if they were fully occupied and we kept up our classes right up to their full maximum this would be reduced nearly one half.

7327. Professor FITZGERALD.—In fact the 17*s.* would be reduced one half and the 6*s.* 8*d.* would not be reduced?—No, the Government grant of 6*s.* 8*d.* would very nearly defray the entire cost.

7328. Judge SHAW.—But the additional number of pupils would require a larger amount of material?—Yes, there would be an increase of 1*s.* 3*d.* in material.

7329. Most Rev. Dr. WALSH.—The manual instruction of which you are now estimating the cost is, I take it, instruction in wood work in the fifth and higher standards?—Fifth, sixth, seventh, and ex-seventh. It includes metal working in one centre.

7330. You have some preliminary forms of manual training, let us call it hand and eye training, in the lower standards?—Yes.

7331. That, I take it, is not very costly?—No, we have no separate statistics of the cost; it is part of the ordinary school curriculum.

7332. It is hardly an appreciable addition, I suppose, to the ordinary expenses of the school?—Kindergarten is an expensive item, that is all.

7333. What you have in the grades between kindergarten and the fifth is a development of the kindergarten, not at all so costly as the work of the fifth standard and those above it?—No.

7334. To what extent has that intermediate description of manual work been introduced into the voluntary schools, can you say?—I am afraid I have not sufficient knowledge.

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7335. Can we get from you the statistics of the attendance in the various standards, giving in each case the age of the children. I don't mean to ask you to give these to us now, but it would be a useful thing for us if you could hand in a return of the number in attendance in each standard, and also the ages of the children in each case?—I can easily give you that if that would be of use.

7336. Mr. Molloy.—Please explain the functions of a day training college?—A day training college differs from a residential training college in the fact that its students are not necessarily resident in any common building. As a matter of fact, though we call it the day training college, there is a hostel or residence in which the majority of the students live; but they don't get their instruction in that hostel; they get their instruction in the ordinary classes of the university college, they form portion of the students of the university college for the time they are in the day training college.

7337. Professor Fitzgerald.—Then practically the day training college is a university college?—Yes.

7338. And the day training arrangements are merely a clerk to tell them where to go?—No, they receive their intellectual training entirely at the university, but besides that they have in connection with the hostel, instruction in professional subjects, and they have also practice for a limited amount of time in the public elementary schools of the town.

7339. Mr. Struthers.—Under the Board?—Not entirely, but mainly under the Board.

7340. Mr. Molloy.—Is the lowest grade in the teaching staff a stipendiary monitor and then a candidate?—They are convertible terms; the old stipendiary monitor is now called a candidate.

7341. The next grade would be pupil teacher?—Yes.

7342. What would be the age of the pupil teacher at entrance?—They must be fourteen before they enter, and they must be eighteen before they complete their time; they may be from fifteen to nineteen or sixteen to twenty. In future they must not be less than fifteen, in the Code that is now coming in, in towns.

7343. What is the minimum age for a candidate?—I think thirteen.

7344. And what remuneration do the teachers and candidates get?—That depends upon the terms of the individual employment. Here the male pupil teachers receive up to £27 in their last year; they begin with £15, £18, £21, and £27; the female teachers begin at £11, going up to £21 or £22.

7345. Is it found by experience that the instruction given in central schools to pupil teachers is advantageous?—Central teaching here does not supersede, but merely supplements, instruction by their own teachers.

7346. In which place is instruction in how to teach a subject given?—In the school by their own teachers.

7347. Are there many continuation evening classes under the Board in Liverpool?—Not a great number; there are about fifteen or seventeen schools.

7348. Is the selection of subjects in these schools open to local option?—Under the general regulations laid down by the Board there is a considerable choice allowed.

7349. In your report I see it stated that whenever you require to borrow money from the Public Works Loan Commissioners the money cannot be obtained at less than 3½ per cent., and your Board thinks that excessive; in Ireland it is much more than that?—We have been able by a financial operation to pay off the Public Works Loan Commissioners and borrow money through the instrumentality of the Corporation at less than 3 per cent.

Miss Fanny Calder, Hon. Secretary of the Liverpool Technical College for Women, examined.

Miss Fanny Calder.

7350. Chairman.—I think that you are the Honorary Secretary of the Liverpool Technical College for Women, and also the Hon. Secretary of the National Union for the Technical Education of Women in Domestic Science?—That is so.

7351. And you are prepared to give us some evidence with regard to cookery. Will you explain to us the system at present accepted by the Education Department?—The Education Department now gives a grant of 4s. a head for every girl in the fourth standard or upwards who has taken forty hours instruction in cookery.

7352. Forty hours in what period?—In a year, twenty hours of which must be occupied in working with their own hands, that is to say it is by demonstration and practice that cookery is taught, and the girl must have at least half of the forty hours occupied by her own practice.

7353. Do you find this system is of benefit to the children?—We find it a very great benefit. It has kept them longer at school to begin with, which is always an advantage to the girls, as well as given them a taste for domestic work, brightened their ideas and given them more general intelligence.

7354. How do you think you could spread this system?—The system has been spread very much through country places by itinerant teachers, and is still being done to some extent, although now so many school boards in England have teachers regularly appointed by themselves, but in the early days and to a certain extent now it is very much spread by itinerant teachers living in one neighbourhood and going day by day by train or otherwise to the various schools in the neighbourhood, and continuing to give weekly lessons until the forty lessons are completed.

7355. Are these country schools generally supplied with apparatus out of their own resources?—Yes, out of their own resources. As yet the Education Department has not given any money to supply utensils. Most of these rural schools have been so supplied, partly by borrowing, and some of the smaller utensils are carried about by these travelling teachers.

7356. Do you find in rural places persons of affluence who are interested in the matter, and have given subscriptions and grants towards supplying appliances?—In a great many cases, and where there was not a suitable room a kitchen or a servants' hall has been lent for the purpose, and the utensils in use in the house have been lent with others to make it enough for a large class.

7357. How do you train your teachers?—The teachers are trained in Training Schools of Cookery situated in London and about the country. In most of these schools the education was started from Liverpool; it was organized and arranged by the Liverpool School of Cookery or Technical College for Women, and there are training schools in the last few years started all over England; there is one in Dublin started from the Liverpool school and supplied by teachers from the Liverpool school.

7358. Do these schools grant certificates?—These schools of which I will speak first do not grant certificates; they are joined in the National Union for the technical education of women in domestic science; this National Union is a Council or body by whom these certificates and diplomas are issued.

7359. How are the certificates obtained?—There is a regular training course of lessons required according to the demands of the Education Department in the first place and then for those who have high class cookery added on the time is prolonged; a regular course laid down and examinations gone through; it is theoretical and practical.

7360. They are expected to cook something?—Oh, yes; there are regular inspectors appointed for the

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schools who see them teach and see how they work after they have been examined in theory.

7361. Are there any schools in which upon the premises there are places suitable for teaching cookery?—Yes, most of the training colleges have suitable centres to which schools can come which are not able to have it in their own premises, but now the School Board supplies a great many centres around the country which the voluntary schools can attend.

7362. Within easy walking distance?—Yes; but as an ordinary class-room can easily be adapted and the things covered up afterwards, a great many schools have it on their own premises.

7363. How is the material generally obtained?—It is easily obtained, because a teacher sends a list the day before of what is wanted, but the disposal of it is what you wish to know; most of the scholars are prepared to buy it in small quantities for a 1*d.* or 2*d.*, either for their own eating or to take home.

7364. Who provides the materials?—That is provided by the authorities—the managers of the school.

7365. In London we heard that, at any rate in one centre, they have succeeded so far in making it pay by selling the materials, not in the sense that it paid all the cost of the teaching, but that it made a profit on the cost of the materials; is that your experience in Liverpool?—That has been done and can be done, but we don't recommend it; we think it far better to sell things at cost price rather than ask a larger price which may answer in one course of lessons but not in another; the children may not be able to buy it; a great many of the teachers do buy it.

7366. Would you give us some information with regard to laundry work?—In 1890 the Government made a grant of 2*s.* a head for every girl who in the fourth standard or upwards should take twenty hours laundry work, that is ten lessons. We, in Liverpool, who organized this originally, always divided our lessons into two hours each, alternate demonstration and practice, taught by demonstration from the blackboard and everything thoroughly explained, that would be ten lessons of twenty hours and they got 2*s.* a head.

7367. The girls get the grant for attendance without any reference to their proficiency?—They do get the grant for attendance, but the Government has now appointed an inspectress of cookery and laundry work who goes about to see the schools and colleges, as she is required by Her Majesty's Inspectors, if there is any doubt in their mind as to their efficiency and thoroughness.

7368. It would be in the power of the inspectress if she thought the thing was not up to the proper standard, in spite of the attendance to recommend that the grant should be refused?—She could warn the school a first time, and probably it would be withdrawn if it was not remedied.

7369. Most Rev. Dr. WALSH.—Was any opposition encountered when you introduced this cookery work into the schools in Liverpool?—Very great opposition, not only in Liverpool but all over the country, and we were accused of degrading the education of girls by introducing anything so homely into education.

7370. A number of the parents, perhaps, objected?—No, but educationalists, and faddists, and theorists.

7371. You mean, people who called themselves educationalists?—Yes; and occasionally a parent has sent to say she could teach that herself, very occasionally. But when we introduced laundry work there was not the slightest objection, they had got so convinced by the practical work of the cookery that they received the laundry work with open arms.

7372. Even the educationalists?—Even the educationalists.

7373. I believe you introduced these two practical branches here in Liverpool before they were recognised by the Education Department as subjects for a grant?—We did so, and also subjects to which I hope you will come subsequently—home dressmaking, household sewing, domestic millinery, and housewifery.

7374. Have all these been introduced here?—Yes.

7375. They are only beginning the housewifery in London; have you got it working practically in Liverpool?—We have it; but we have it in a sort of separate science school for girls, the same as they have separate science schools for boys. We have domestic science schools for girls, not in the elementary school itself; they pass from one to another as an improvement on that system.

7376. This represents a more advanced stage?—A more continuous stage; they get six or twelve months.

7377. In Liverpool they began by introducing these branches for the sixth standard, and then worked gradually down?—No; we introduced it in whatever standard we could get to try the experiment on, because the Education Department would not recognise any subject that had not been tested or proved.

7378. In the report of the School Board it is stated that instruction in cookery was formerly limited to girls in sixth and seventh standard and has now been extended to standard five?—The School Board came in long after we had done it in the voluntary schools; the School Board benefited by our experience, and pushed it on.

7379. I suppose there is no feeling of opposition now to these branches of work?—None whatever.

7380. The feeling probably is that they ought to be extended?—Quite so.

7381. May I ask you whether you aim at having the work done with the aid of such appliances as the children will have in their own homes?—We have done so from the very beginning.

7382. You don't aim at fitting up a place for cookery such as it would be in a large institution, or a first-class private house or hotel?—Certainly not.

7383. With large and expensive utensils?—Many of our classes are taught in ordinary schoolrooms, with the very simplest appliances; those are gradually dying out, and they are getting things a little better, but nothing but what girls can find and use in their own homes.

7384. Don't you think it a great advantage to teach them to cook with appliances such as they will have in their own homes?—To a great extent, but when it comes to teach to cook with cross-sticks on a hearth, we don't think it necessary to teach that. We work with extreme simplicity, and we have penny manuals attached to each of our subjects, for the children to take home afterwards and refresh their memories.

7385. You don't gauge the result of your teaching by merely examining these children in the manuals?—Oh, no.

7386. You are not content with holding a written examination in cookery?—Oh, no; when the children are examined it is practical and only by questioning.

7387. Mr. REDINGTON.—The course for cookery is forty hours and each lesson is two hours?—That is according to the system we originally started with, which was accepted by the Education Department, but some schools alter the time. The Liverpool School Board has one and a half hours.

7388. Does a practice lesson immediately follow a demonstration lesson?—Not necessarily; in some cases it is desirable and necessary, but very often it is demonstration this week and practice next week.

7389. Which would you prefer?—I think it would not be a bad thing to have both on the same day, demonstration in the morning and practice in the afternoon.

7390. Could there be a demonstration lesson of one and a half hours?—Not to be efficient. One great thing is for the girls to see the result of their work, it is impossible in many cases to cook things in one and a half hours.

7391. CHAIRMAN.—How long does it take to cook potatoes properly?—Twenty minutes; but that would not be the chief thing taught.

7392. That is what the Irish children would have to cook?—We wish to be thrifty and make use of odds and ends, and that takes a little more time.

7393. Mr. REDINGTON.—If a demonstration and a practice lesson follow each other how long would that be?—Two hours demonstration; we can get almost all we teach into two hours.

7394. If you had both demonstration and practice would it not take more than that?—Two hours for demonstration and two hours for practice is the way we divide it.

7395. The whole day?—Two hours in the morning and two in the afternoon.

7396. Would they in any school give up four hours a day to the teaching of cookery?—Yes, they find the advantage of it; they have a teacher for that one day and it is done with, it helps the time table very much.

7397. Would you prefer to have once a week two lessons of two hours each, rather than a lesson of two hours every day during the week?—In the first place the Education Department won't allow that any more than eight hours may be taken in the week, but we think it is far better to have it only once a week, it rushes too much into the children's heads.

7398. Is your ideal system to have two hours demonstration in the morning and two hours practice in the afternoon?—Yes, once a week.

7399. You say that at present itinerant teachers are not so much employed?—That is because the teachers have learned cookery in some country places or in other places the Boards or schools have opened centres and a teacher is resident there the whole time.

7400. There could not be a teacher for one school. If there was a resident teacher would she not teach several schools in the neighbourhood?—Yes.

7401. That is the practice of itinerant teachers?—Yes, it is; but the teacher travels about the country in one case, and in the other she is perpetually in the one neighbourhood.

7402. How many lessons would an itinerant teacher give during the week?—Ten lessons a week—two a day for five days of the week.

7403. In order that a teacher may get a certificate of the National Union, she must go through a course of six months?—Six to nine months for an artizan diploma; fully twelve months for a diploma to teach high-class cookery.

7405. Learning cookery every day?—Yes, with the subjects necessary to teach cookery, method, art of teaching, elocution, elementary chemistry, and elementary physiology.

7406. Then it is practically impossible for an ordinary teacher in the country to get a diploma from the National Union?—She cannot unless she lays aside her work for the time being, but she can get an elementary teacher's certificate, which the Education Department allow to be given to teachers after two years of learning on Friday evenings and Saturday mornings. On completing a certain course of lessons she can get the elementary teacher's certificate at the end of two years, but the Education Department do not wish their teachers of other subjects to take the full training in cookery.

7407. Would this certificate in your opinion qualify a teacher for teaching ordinary artizan cookery?—They are given by our Union under the authorization of the Education Department.

7408. Do you think they are sufficient for ordinary schools?—Quite. But it is not desirable except in quite country schools where the teachers have less to do that teachers should take cookery as well. In town schools they have too much to do.

7409. In rural schools is it easy to sell the dishes after they are made?—It quite depends upon the interest and influence of the managers and teachers. You cannot define it. In some most remote places they sell extremely well, some places have to issue tickets to the children there is such a demand for it, and the first comer is first served.

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7410. As regards laundry work, where do you get the materials?—For washing, the children always bring a supply from their own homes.

7411. Do you find the children are ashamed to bring things from their homes?—For the first lesson or two; but there are always things that can be supplied by the teachers or managers.

7412. As regards laundry lessons, do you advocate that there should be demonstration in the morning and practice in the afternoon?—Yes, exactly the same.

7413. If circumstances limited the attendance of the cookery instructress to two hours, could you get a demonstration and practice lesson into two hours?—Not for cookery—in laundry you might.

7414. Professor FITZGERALD.—You found a difficulty in persuading managers and teachers at first. How did you set about persuading them?—In Liverpool when we organised it, we literally gave it to them to show what could be done, and as they earned the grants they willingly did it, and as Her Majesty's Inspectors have recommended these subjects so strongly, schools that could afford it immediately took it up

7415. It was first of all by bribing schools, and then by the general recommendation of the Inspectors?—It was by public feeling

7416. Did you give lectures to influence public feeling?—Yes, we gave special lessons and invited all to come and see what was done; you will find all that is passed now.

7417. It is not passed in Ireland?—You would do well to have meetings there and let the teacher give a lesson and show how simple it is.

7418. Cookery is a thing in which we have instructresses in Ireland?—And in laundry too, I have sent teachers there and given certificates to teachers trained in Dublin.

7419. The certificates that are given in Dublin, are they not given as the result of a test imposed in accordance of the regulations of the central authority?—Oh, yes, the National Union; they have to go through the same strict regulations and tests.

7420. And their certificate is recognised in this country?—Yes, by the Education Department.

7420A. Do you think these subjects can be made of educational value?—Very greatly; they awoke the intelligence of the children so very much, and the parents are so pleased that they keep the children much longer at school.

7421. You said there were some other subjects you hoped to be asked questions about—housewifery, sewing, hygiene?—We have now started special science classes for girls to attend the moment they are free from the elementary standards.

7422. A sort of continuation school?—Yes, in which they give their whole time to cookery, housewifery, household sewing, and domestic hygiene.

7423. How does that differ from the instruction in technical training colleges?—The teachers are resident, and the girls learn housewifery by doing the work for the resident teachers. I should like you to see our college in Liverpool; it is the first of the kind done in Her Majesty's dominions in its full completeness.

7424. In London we saw rooms in connection with a centre in which children learned to make beds and clean lamps?—Here we have it not merely practiced by experiments, but with us they have to keep the house in complete order.

7425. Most Rev. Dr. WALSH.—May I ask where this can be seen?—I shall be very happy to show it to you—No. 4, Prince's-street, on Wednesday or Thursday morning. The morning is the time to see it—then the work is practical; in the afternoon it is by lecture. What we hope will be the outcome of all this practical education is that every girl will be required to attend such a school.

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7426. Professor **Fitzgerald**.—Is that for the teachers specially?—Oh, no; for the children, generally.

7427. How many hours a week do girls do sewing in the elementary schools in Liverpool?—It is just according to the length of time they take for sewing, whether 40 minutes or 1½ hours, according to the regulations of the special school.

7428 What would be the usual one in Liverpool?—The schools only take the usual sewing. The special household sewing I speak of is only taught in the special science centres.

7429. I was speaking about the ordinary sewing in schools?—Sometimes it is taken for 40 minutes in the day, but another time 1½ hours; but you will have to find that out from Mr. Hance.

7430. In the ordinary schools are the lessons in domestic economy illustrated by experiments? We found that in one of the London schools, when they were describing soap, the teacher made soap for the children. Do they illustrate the lessons by experimental demonstrations?—Not in the schools of which we speak. The domestic economy is quite a different thing; it is chiefly by book work. There is an occasional demonstration, such as you speak of.

7431. Don't you think experimental domestic economy might be introduced which would be of value?—It may be so in connection with these classes, for in these classes we do teach the children the elements of soap, and how it is made, but don't attempt to make it. Domestic economy classes might be made very useful side by side.

7432. At present it is book work; you do not think that advisable?—We think it is very little value.

7433. Mr. **Redington**.—Could you calculate the cost of the utensils that a cookery teacher would require when going to rural schools—say ten rural schools?—The absolute utensils themselves would cost from £6 to £8, irrespective of the stove.

7434. Will the stove always be found on the premises?—Unless you carry an oil stove, which we have been able to do on some occasions, but that is not very satisfactory. £6 or £8 means a class, not an individual, as there are many more utensils required than in an ordinary home.

7435. Captain **Shaw**.—What size class?—The Government allows eighteen, but we send twelve—at the most, fifteen. Twelve is the best number; eighteen we think far too many for a good teacher to manage. A bad teacher can manage any number—no difficulty about that.

7436. Mr. **Redington**.—Does the itinerant teacher bring these utensils with her?—If necessary, we take them packed in a hamper which can be conveyed about.

7437. So if she taught ten different classes of twelve a week the cost per child would come to very little?—It would be £5 a course irrespective of utensils.

7438. Mr. **Struthers**.—Do you prefer special teachers both in town and country schools?—Yes, very much; they are able to give their minds more to it, the elementary teachers have so much to attend to.

7439. Does the department recognise cookery teaching except on the diploma of the National Union?—Oh, yes; there is the London Training School of Cookery, there are the Edinburgh, Manchester, Norwich, Nottingham, and Cardiff, which are not in the Union.

7440. Have they laid down a minimum course which is necessary before a teacher can be recognised?—Yes; not less than six months.

7441. An elementary certificated teacher may teach cookery on this special class of teacher's certificate?—They may; it takes two years to get that.

7442. You don't attach much importance to the teaching of domestic economy from books unless followed up by practice?—Not much; it has been going on for many years, and does not seem to have had much effect on the children until these lessons were started.

7443. So you think the time spent on it very much wasted?—Yes.

7444. Monsignor **Molloy**.—Am I right in supposing that a demonstration in cookery is not merely a theoretical lecture, but that cooking is actually done before the pupils?—Yes.

7445. And therefore the time required must be sufficient to enable the cooking to be carried to an end?—Exactly so.

7446. That is the reason you require two hours?—Yes, and it is also taught with the use of the blackboard. We think none of these things is ever a success unless the blackboard is well used to teach the children to remember things by the eye as well as by ear.

7447. Are the pupils taught anything about the prices paid for the materials?—All these are put on the blackboard, and they are to be questioned on it.

7448. This school in Princes-road you called a science school; do you make a point of calling it a science school?—We do; I will give you the whole name and reason. We call it secondary education for girls in domestic science, because it is very difficult now to get girls to go on with their education; but when they have their brothers going to these science schools——

7449. They feel they are on a level with their brothers?—Yes, and they had great fear of being thought to go to a training home. We got the Royal Commission to call it secondary education; a great deal goes down in England, and perhaps you will find it so in Ireland, by the name used.

7450. You think they would rather have domestic science than domestic economy?—Domestic economy is a term that has been applied for many years to mere book-learning, and so we avoid that term, but the term domestic science explains what we mean, and also puts them on a level with their brothers, and they are also taught scientifically; that is the difference between the present teaching and what was taught in years gone by.

7451. The subjects are cookery and laundry?—Household sewing, that is mending and patching and darning the garments in actual wear and tear.

7452. Do you find the pupils are willing to be taught darning and mending?—They are willing to be taught cutting out, but they are very unwilling to bring their garments at present, so we have to supply them.

7453. They are also taught dressmaking?—Home dressmaking. They do the whole thing themselves, take the measurements, draw the patterns, cut out, and make it.

7454. What is done with the dresses when they are finished?—They have them themselves. Those who come by scholarships have them given to them, and those who come into the school pay for them.

7455. Do they get them for the cost of the material?—Yes. Domestic millinery is another subject—that is the renovation of old hats and bonnets.

7456. Are they willing to bring their old hats and bonnets?—Oh, yes, they come in those and see them done and are delighted.

7457. Mr. **Molloy**.—If I mistake not you inspect the Cookery school under the Dublin Training Association?—I did.

7458. The Dublin Association was in existence for ten or fifteen years before being connected with the National Union here in Liverpool?—Yes, it was.

7459. You don't allow certificates to be given by the Dublin Association proper; the certificates must be in connection with your Union?—Yes, none of the schools in the Union give local certificates. They are all examined for and tested by examiners from the Union, independent of all the schools.

7460. When is that test applied?—The schools have to fix their time. They have a certain limit of time that they must be trained in, and when they are ready they intimate how far ahead they want an examination, and that is arranged.

7461. I don't know whether it is quite fair to ask

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you whether you would see any objection to the Dublin Association for the training of women in Cookery, Laundry, &c., that has been in existence for fifteen years, issuing its own certificates?—We think it is wiser to have it all done by a central body than for every school to issue its own diploma and certificate, the standards may be so different; but this is an assurance to the public that a teacher coming from any school in the Union is of a certain high standard of education.

7462. For a less extensive course would you think that an elementary teacher might acquire, on comparatively easy terms, the certificate for artizan cookery?—Not the certificate for artizan cookery, but there is a special certificate authorised by the Education Department called the Elementary School Teachers' Cookery Certificate, which is given to teachers who have had a certain number of lessons, but were not trained to teach. We accept the training which the Government has already given them in the art of teaching.

7463. Professor FITZGERALD.—Who examines for this?—They go through exactly the same examination as the others.

7464. They come to some centre?—They would have to go to Dublin or some centre.

7465. Mr. MOLLOY.—At present we have four teachers employed by the Irish National Education Board, who hold the certificate of the National Union, and I believe they are all highly qualified. When they go to rural schools and give demonstration and practice lessons, would you see any objection to their granting a certificate to the local teacher to carry on that instruction?—No, you must set apart certain hours of time for her or for a group of teachers to have certain lessons, because the lessons to teachers are quite different to those given to pupils. We generally find Friday evening or Saturday mornings are the times the teachers can come together best, and to meet the demands of the Education Department, that takes about two years; she is examined in exactly the same way as the other teachers are, but she is not required to have training in the art of teaching, that is the difference.

7466. Your certificated teacher under the National Union settling down in a locality ought to be able without much difficulty to find out the qualifications as to teaching of the female teachers about her?—Of course she could, and she could form a centre if necessary.

7467. Then you do not see any violent objection to your highly qualified expert giving a certificate?—No. In remote country places it is an advantage because they cannot afford to have a teacher going to and fro, as I knew in one place in the south of England where the teacher's travelling expenses was 12*s* each lesson she gave. In a case like that we advocate the teachers coming to the centre.

7468. Mr. REDINGTON.—Do I understand that you would only give a certificate to the teacher after attending a special course of lessons, and that her attendance at the lessons given by this special teacher to the pupils would not count?—Lessons to pupils would not count for a teacher.

7469. Mr. MOLLOY.—Why should not a number of neighbouring teachers, within an area say of three miles, attend on a Saturday and receive instruction from your highly qualified expert?—That is what they can do, of course that is a question of longer time, there are a limited number of Saturdays in the year, and the holidays come in, it takes about two years.

7470. Coming to the demonstration lessons, would you see any objection to persons being present who would not afterwards attend practising lessons?—No, if the number was limited, and they were not allowed to talk, but had to behave as scholars entirely, and not as lookers-on.

7471. In Ireland, in the schools attended by the teachers who have the certificate from your union, the mass of the children attend commonly at the demonstration lessons, and derive a great deal of advantage?—There is no disadvantage if they only behave quietly, and don't talk or distract attention.

7472. Do you think that a nine months' course is absolutely essential, does not that appear to be prohibitive on a number of people coming forward?—Oh, no, they have to learn to teach, it is not at all too long, we don't find it prohibitive, in fact we have raised the fees from fourteen to eighteen guineas, and it has not kept apparently anybody back.

7473. Judge SHAW.—Has your attention been called to the subject of instruction in dairy management or poultry-keeping in rural schools?—It has, but we in Liverpool have not dealt with that; we have not had the knowledge of it, or the conveniences for it, and we considered those matters not desirable in towns.

7474. Does your National Union give instruction in such subjects?—No, it does not, because the County Councils about England do it, and we would not wish to interfere: the County Councils mostly have schools for dairy work, and we send our teachers there: some of our teachers take all these subjects up.

7475. Do you know is poultry management made the subject of instruction in any rural schools?—No, I have never heard it yet.

7476. Or bee-keeping?—No.

Mr. HUGH GORDON, Inspector of Schools under the Science and Art Department, examined.

Mr. Hugh Gordon.

7477. CHAIRMAN.—I believe that you are an inspector under the Science and Art Department?—Yes.

7478. Will you give us some information with regard to the course of instruction recommended?—The important question which has to be first considered in the instruction in elementary science is this: Is the instruction to be theoretical or practical, *i.e.*, by experiments carried out by the scholars themselves. Hitherto in the great majority of cases the instruction has been by means of lectures and demonstrations. From my own experience of the result of work of this kind I have come to the conclusion that it is of little use. If a boy is to have any science instruction at all, I think from what I have seen, that he ought to begin when he first goes to the elementary school, and further that he should begin doing practical work. In speaking of practical work in science, it must be clearly understood that such work includes the simplest kinds of measurements, &c., for in learning these, methods of great importance may be inculcated. I think, for instance, if he can be shown how to find out simple things by means of a ruler he will be able, using the same methods, to find out very much more difficult things in his science work. For instance, in learning arithmetic, I think great importance ought to be attached to the method by which he learns it. If he can have a ruler which is divided into inches and tenths and is shown how to add these up by making additions and subtractions, by means of lines, he can in that simple way learn what is meant by the decimal notation, and then from that after using a ruler for some time he can go into different kinds of measurement, such as measurements of areas, weights and so on.

7479 Can you give us any hints with regard to teachers in reference to instruction?—The great difficulty I had first of all to contend with was this, that the teachers had little real knowledge of the subject of which we are speaking. I found, however, if it was made elementary enough, as it should be for the boys, the teachers could go along at the same pace as the boys. In fact I used originally to give the demonstrations not so much for the boys as for the teachers in the school, then the teachers made use of

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that, and gave instruction for that fortnight and the next fortnight I advanced another step. I found that the teachers I had to deal with were quite capable of doing this, and I must say the ones I found easiest to deal with were the ones who had done no science before, and the ones most difficult to deal with were the ones that had done a little science before.

7480. And had done it wrong?—And had done it wrong, and in consequence thought they knew a great deal more about it than they actually did. This of course comes from their not doing it in a practical way. Exactly the same may be said in the case of cookery: it cannot be taught by lectures alone.

7481. What do you say about apparatus?—The apparatus required is of a very simple kind; I think it is quite sufficient for a school to be supplied with £20 worth of apparatus, and perhaps given about £1 a year for breakages.

7482. Do you say that with reference to manual instruction?—No, I am talking of practical science, the instruction in such elementary sciences, such as physics and chemistry. I think it is of the very utmost importance that before girls take up cookery or domestic economy, they should have some practical instruction in science. I find cases in which girls are supposed in a lesson to learn an amount of a subject which would take perhaps a year to learn to be of any use, and of course the result is they cannot make use of that knowledge at all. For instance, they learn in a lesson all about air; well, what they have learned in one lesson about air is no use to them at all, they cannot apply that knowledge. Air is brought into the Syllabus, so that they may be able to understand something about ventilation, &c., but as they are told all the results without learning how to find out anything for themselves it is of little use to them. The result is that children become like encyclopædias which may be examined and some true and some false statements collected, but they are totally unable to move of themselves. When they learn it that way they will answer questions, the answer to which they know, but they cannot answer anything which bears on it. The apparatus required for a course of that kind would cost about £20, and a little extra should be allowed for breakages during the year.

7483. I don't quite follow that. The apparatus you are alluding to is apparatus in connection with science? —Yes.

7484. At the Rutland-street school in London we saw some proceedings that were going on; but it was only being carried out by boys. Do they give that sort of instruction to girls?—I have not seen any case of girls taking elementary science in the primary schools; but in the case of organised science schools the girls do the same practical work as the boys. In the majority of cases the girls do it very nearly as well, although their mental capacity does not appear to be so much developed as that of the boys, but their neatness is very much better and they stick to their work very much better, so I am quite sure that in the elementary schools they will be able to do it as well as the boys.

7485. And you think it as useful for the girls as for the boys?—Quite, only I should have it slightly changed in later stages. The important things to consider in the case of girls are cooking and laundry work and domestic science.

7486. Yes, but I understand from the answer you gave me that you include cookery and laundry work with science?—Yes; but I mean the science instruction should lead up to such work.

7487. I don't see for instance that weighing out certain things and burning certain things to show that rust is burning—I don't see how it leads up to cookery?—That is not the commencement of the course, that is after they have been at the course for nearly two years.

7488. I did not understand that?—Part of it, the rusting of the iron and so on, but the weighing I consider to be of importance. In the first year's course they do work with the thermometer. Now, in cooking, the thermometer is of great importance. Then they learn about water, which is important in laundry work, and the action of soap on different waters, permanent and temporary hardness. The action of heat on certain things like the albumen of an egg leads up to different parts of cooking, and they see why it is necessary to put certain things in hot water.

7489. What do you think about the accommodation for such work?—I found that the ordinary school accommodation would do quite well as long as there were cupboards and sufficiently strong tables.

7490. There is no occasion for anything in the shape of an oven or a stove?—For teaching science work?

7491. I had cookery in my mind at the moment?—I was not going into cookery, only physics and chemistry, which are important as leading up to such subjects as cookery.

7492. What is the number of boys and girls that one teacher can effectively teach?—It is a rather difficult question. I have had teachers who by certain methods have been able to take as many as seventy or eighty, but they have been able to arrange that the boys are working at all times of the day. The boys each work for about ten minutes during some of the other lessons. There are a great many different subjects which the boys and girls have to do without any demonstration. Of course in dictation they cannot go out, because when the teacher dictates, all the children have to attend, but in subjects like mathematics the boys can come to the table, which is before them, and do their work for ten minutes and come back again and others follow. Organized in this way I found that one teacher was able to take seventy or eighty, and this school I am thinking of did better work in my opinion than any other school; of course the teacher was exceptional. I should think about forty at the most would be sufficient.

7493. In Ireland the hours devoted to instruction in the day are shorter than in England; do you think that would make it more difficult to introduce these extra subjects? They have only one school attendance instead of two in the day?—I know nothing about the Irish days.

Captain SHAW.—It is a four hours attendance with a short interval, starting about ten o'clock.

7494. CHAIRMAN.—Of course that limits the hours in which you could put those subjects?—Then have they the same subjects as in England?

7495. Mr. REDINGTON.—They have more compulsory subjects?—If they have more work and less hours I don't see how you could introduce anything

7496. Judge SHAW.—Even with these short hours and numerous subjects, we have a great many complaints that there is unnecessary repetition of the same thing?—I think repetition is a great mistake, the subject ought to be done thoroughly and slowly. The great idea in many schools is to hurry through the subjects so quickly that you can go through it two or three times before the examination: they don't allow any time for the scholars thoughts to play round the subject, they take what they are told and it is swallowed but not digested.

7497. Your experience is that a great deal of time is wasted on half work, which is not work at all?—Yes.

7498. A great deal of the time so wasted might very well be given to practical subjects?—The subjects which are taken should be taken more slowly and not be gone through twice. I should take the one subject and do it the whole time.

7499. More slowly and more thoroughly?—Certainly; referring back when necessary to the parts of the subject which are important. Everything should be built on what has gone before and when necessary referred back to what has been already done. In the case of Euclid, a proposition is based on all

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the other propositions that have gone before, and reference is made to them.

7500. Cannot these elementary science lessons be established at very small cost?—It all depends on how far you are going.

7501. If you have a limited sum to work on, is it not possible to establish a series of useful experiments for children to work upon at a small cost that will introduce them to the fundamental principles that underlie all science?—I consider it quite possible.

7502. An introduction to elementary science of that sort is a much less costly business in a poor school than the introduction of manual work?—I should certainly think so.

7503. Cannot those experiments, simple scientific experiments, be so arranged and so managed as to give a great deal of hand and eye training as well as mental training?—Yes, I consider they can to a certain extent.

7504 A child that does an experiment and has to go through it with great accuracy in order to produce a proper result, must use its hands and eyes?—Quite so, but there is one important point in connection with this; care must be taken to see that the teacher himself does not do all the work. I assume the child is led to do the work himself, but it is a very difficult thing.

7505. If the children are properly taught and left to do these scientific experiments for themselves from first to last, does not that involve manual training as well as mental training?—Very much so.

7506. And where it would be impossible to have a system of manual instruction either from expense or inconvenience or anything else, would not a system of experiments in science be a sort of substitute for manual work?—It would supply its place to a certain extent.

7507. Mr Molloy.—Are you practically acquainted with the instruction given in any of the training colleges in elementary science?—I have five training colleges in my district.

7508. Do they carry out instruction in elementary science?—There is no practical work of any description, it is all theory, and it is remarkable considering that it is instruction for people who are going to teach others.

7509. Would not a training college *prima facie* be the most suitable place to have the instruction carried out, both theoretical and practical?—It would be most suitable for such instruction.

7510. In view of the fact that there are upwards of forty training colleges in Great Britain could you account for this not being carried out in a practical way in these colleges?—I have not thought over it at all deeply, but I should say in the majority of cases the principals being classical men had something to do with it.

7511. Have you published a syllabus of your own course in practical work?—It is published in the Code, Code H, and also in full detail in the Evening Code.

7512. Have you not also published a little book on the subject?—A small book; the first part.

7513. In addition to this being attended to I assume practically as well as theoretically, in the training college, would you be also in favour of organised teachers coming to certain centres and instructing in a practical way those teachers who had not received instruction previously?—Yes, and it is quite practicable, and if they do have such instruction from centres I have found that they become very capable as long as they put their heart into their work and the peripatetic instructor is careful not to go through the work too rapidly.

7514. Monsignor Molloy.—You attach very little importance in the teaching of physical science to a lecture which sets forth facts and principles, and is illustrated only by the teacher?—Yes, very little importance, and I say this after some years' experience.

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7515. And you advocate a system in which the pupils are trained to make the experiments themselves, and to find out the principles for themselves by means of experiments?—Yes.

7516. Well, the first system is the system that is generally carried out under the Department of Science and Art?—That is so, to a certain extent; but there are certain subjects which may be taught practically.

7517. The physics is taught by lecture, is it not chiefly, and by experiments made by the teacher?—Chiefly, but the Department has allowed this year practical instruction to be taught in physics, and gives as high grants as can be obtained in practical chemistry.

7518. Has it been taken up largely by the schools?—No; not largely. The reason is, that only schools under the new regulations can earn grants for it, and very few schools so far have come under the new regulations.

7519. You have yourself introduced the other system, namely, the system in which the pupils make experiments for themselves, in the Rutland-street and Berners-street schools in London?—Yes.

7520. And your experience of these schools has been entirely favourable?—Quite.

7521. We have seen these schools, and we are pleased with them?—I have not seen them myself for the last three years.

7522. If your method was adopted do you object to the other method being adopted side by side with yours, that is, a course of lectures in which the lecturer makes the experiments and explains principles, besides practical work being done by the pupils on the same subject?—I do not for a moment consider that lectures supplemental to such practical work are bad. For example, if boys engaged in practical work are shown the results of the class on the blackboard, then from these the teacher may show them how to generalise. It is very difficult to generalise from the facts which one boy can obtain in so short a time, and beyond this the lectures may be of the greatest use, as the teacher can then do certain experiments which it is not suitable for boys of that age to do. There are a good many experiments of this kind which may be very instructive, indeed, if taken in connection with practical work.

7523. Then your objection is to the exclusion of practical work in the teaching rather than the introduction of lectures in which the experiments are made by the professors themselves?—Yes, but the chief part must be the practical work and the lectures only supplementary to it; they must not be disconnected; they should go side by side. In some cases practical chemistry is being carried on quite apart from the theoretical; the syllabus is quite different. This is a great mistake.

7524. Has not all the best teaching of physical science been done by those teachers who have at the same time given courses of lectures and trained other pupils to work for themselves?—No one could consider he had had sound instruction if he had not done the work himself.

7525. The question I ask is whether the best teaching that has been given in physical science has not been given by a professor who has combined the two systems?—I cannot say; I have no experience of colleges where there is good instruction and no practical work going on.

7526. Also you have no experience of colleges where lectures have not also been given?—No.

7527. Then in fact the best teaching is that which combines both methods?—Yes.

7528. Mr. Struthers.—Any lectures that are given should be supplemental to the practical work of the boys and should follow on it?—Yes.

7529. If I remember rightly at Rutland-street the teacher gave a demonstration lesson, and then the boys broke up into sections and did the practical work?—The boys have to know what to do; I used

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seldom to do anything myself before them, but to find out from the class the method they would suggest of finding out something. I very often tried to lead them to see what they wanted to find out as being in direct connection with what they had done before.

7530. Professor Fitzgerald.—One of the experiments was exactly the kind you mention, that it would not be safe for boys to carry out, that was the burning of phosphorus in a closed vessel, but it was instructive to show the boys?—I quite agree there, but that same experiment can be done without burning the phosphorus, and that is what the boys should do.

7531. Mr. Struthers.—But it is part of the system that the teacher should give a lesson and question a boy on what he should do and draw out his intelligence in that way, and the teacher actually does give a lesson to a group of boys?—I do not like that; I had to do it at first to a certain extent because of the teachers; the teachers in the schools knew nothing of the methods which I was adopting; in many cases they had been teaching without any experiments, so there was a difficulty, as teachers do not like to do an experiment before the boys which does not succeed.

7532. You would prefer the boys should be first set to experiments, a definite problem before them?—Yes, but if you could lead them to suggest a problem themselves all the better.

7533. As to the number that could be taught at a time, you said seventy or eighty could be taken in an exceptional case, but they were only taken two at a time of course?—Yes.

7534. So as far as that subject was concerned the teacher was not teaching seventy or eighty but only two?—Yes; there was a table in the school-room, and the teacher could devote half an hour in the week to talking over the subject; for instance if he wished them to learn about measurements he would get them to discuss a ruler, as they all have rulers they can do the work at the same time. In the case of specific gravity, the subject would be discussed and the idea be led up to of how to find out quickly the weights of equal volumes of certain liquids. The lesson would then stop and two boys would come out and do the weighing and then go back, two more boys taking their place.

7535. It is very like the cookery lessons we have heard about—you would take a larger number at first for a demonstration lesson, succeeded by actual practice on the part of smaller groups?—All these boys would in one week go through some of the experiments at the table; and although they would be only ten minutes or so there, they would gain much experience, especially as they are thrown more or less on their own resources.

7536. You have a collective lesson first, followed by practice on the part of individual boys afterwards?—Quite so. I should like to add that I believe a better plan is to have sheets of questions on which is given a certain amount of explanation instead of the collective lesson referred to, as the scholar has then to consider the problem by himself. The explanatory portion would become less as the boy advanced.

7537. But always under the supervision of the teacher?—Yes.

7538. In cookery they say they cannot overlook more than eighteen at a time; Miss Calder thought it was too many?—In this case only two are going on with practical work at the same time. The teacher is superintending other boys at other work. If the table is in the middle, away from the desks, the teacher can see easily whether the boys are working. Four boys could be at work if there were two balances.

7539. In the case of introducing this subject into a group of rural schools, I think I could gather that the teacher might, as it were, repeat the lesson he himself had learned from the science teacher the week before?—Yes.

7540. So that it could be very rapidly introduced?—Yes. I actually tried that myself, and found it practicable. It was thought that the teacher would not get sufficiently ahead, but it must be remembered that the work is very simple at first.

7541. If you had a course of experimental science introduced into an elementary school, do you think there is anything to be gained by supplementing it by manual instruction in wood work?—Yes. I think it is of very great importance.

7542. What would you expect to be the result from the manual training, in addition to the result you have already got from the experimental science, educationally?—Well, it is rather difficult to put exactly in words, but in manual instruction the hands are working the whole time.

7543. It exercises the boy's constructive skill more?—He is creating from certain measurements, and has to be using his mind and fingers at the same time.

7544. It is very much a training of observation?—Yes, and it makes accuracy, too.

7545. But you also get that to a very high degree in experimental science?—Quite so.

7546. Of course, as to the value of repetition in educational work one must distinguish the subject—for instance, repetition must be of considerable value in the multiplication table?—I don't disagree there.

7547. Also in learning Latin or French grammar?—I consider the best way of learning grammar of any language is to study the language itself.

7548. I quite agree with you: but suppose one has to teach on the old methods, then the only way to get up the grammar is by a considerable amount of repetition—unless you have a good deal of repetition you won't remember it?—Yes, if it is a something you have to learn by heart.

7549. So that the objection is not so much to repetition as to hurried progress in a subject—taking up a new part before the pupils thoroughly understand what they have been doing?—Repetition in the case of science is very different to repetition in the case of something to be learnt by heart. If you absolutely require them to learn anything off by heart they must do it I suppose, and repetition will make it more accurate; but in the case of science repetition becomes monotonous, and if it becomes monotonous the scholars do not take it in as they do when it is more fresh to their minds.

7550. But in the course of this training in experimental science, they do acquire a knowledge of certain facts which would be useful for them to remember?—Quite so.

7551. And there would be no harm in having these facts impressed on the children's mind by repetition, if they thoroughly understood how they were obtained?—Yes; but most of the facts—if the boys understand them, and what has led up to them—do not require repetition at all. The child, in fact, digests the facts and they become part of him. That is my own experience of learning anything properly.

7552. Captain Shaw.—At present, I take it, in Ireland geography, grammar, and agriculture are obligatory subjects: do you think these might be replaced by such training?—I did not know that agriculture was taught; agriculture should certainly not be taught at this stage.

Chairman.—It is the theory of agriculture.

7553. Most Rev. Dr. Walsh.—Learning so many pages of a book off by heart?—I have seen that myself in agriculture, and when they go out into the fields they cannot apply what they have learned by heart. It is the same in domestic science, they learn about air in one lesson, and if they have to apply their knowledge to everyday life they cannot.

7554. Professor Fitzgerald.—Have you seen the course in elementary agriculture that has been proposed in the French schools within the last few years?—I have not.

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7555. It is elementary botanical experiments in which children are taught to grow things in pots with different kinds of manures and see the way in which it influences their growth. Would you approve of a course on that line?—If they first knew something about what I might call elementary science, such as chemistry, which would show them in a simpler form the method of elimination; but then they cannot understand much about this subject unless they know, for instance, that some substances are soluble in water, and then they can learn how important it is in case of the plant.

7556. That might be a sort of preliminary experiment?—But all these preliminary experiments come in experimental science.

7557. But you would not think that there would be only one course in experimental science; there might be courses which would lead up to agriculture?—Yes, in the same way as courses which would lead up to cookery, but accurate measurements must be taken in the same way in all cases.

7558. But you think there could be a course of experimental science designed to lead up to agriculture?—Yes

7559. And as the course that is worked out now leads towards chemistry?—Yes. But in every one of the courses you would be required to give instruction about air and water.

7560. But along with them there might be some experiments on the growth of plants?—Yes; these would help in elucidating certain problems, no doubt.

7561. Then I understand you prefer very much the system that is being worked in the Tower Hamlets school in London to the system of mechanics worked in the Liverpool schools?—I have not seen the mechanics in the Liverpool schools; I have seen mechanics in an ordinary school; as it used to be taught in London. I believe the syllabus was by a demonstrator in Liverpool, but I did not agree with it because the work was not of a practical kind.

7562. We were told that the expense of balances was very considerable in London; Mr. Diggle complained of the expense of the balances; is it necessary to have expensive balances?—I consider the balance one of the chief educational advantages of the system.

7563. A balance was described to us which the children could make, and in which they could weigh to a centigramme; it was not an instrument that would be permanent, but each class would make its own balance?—I have tried, but I found the boys did not take the care of them that they did of the other balances, and that this taking care was a very good discipline to them. I ought to say that I have not tried whether boys could make balances for themselves, but I never found a balance which was made in this way which was sufficiently good for the work I wanted done.

7564. You said that class in which there were seventy or eighty boys under one teacher was on the whole a successful one, do you think it was partly due to the fact that the teacher was unable to meddle with the boys, and the boys were left to themselves a good deal; is the teacher not a great danger?—In that he does too much—this case never struck me in that light before; this teacher always tried to make the boys do the whole work themselves, and I never saw him do anything but superintend the boys.

7565. Was not that one of the results of his not having much time to spend on them?—It was not. I am quite certain of that, as this teacher spent more time than any other teacher in working out the lesson beforehand.

7566. The power of constructing things that is encouraged by manual training, could it be satisfactorily produced by getting students to construct apparatus for use in their science course?—Yes.

7567. Constructing levers for experimental work?—The constructive part done in practical science is carried out by the fitting up, as the flasks and bottles are ready made; in the case of the lever it would be made with exception, perhaps, of a little file mark on which to rest it on the prism.

7568. Why not get them to make the lever?—That would come under manual instruction.

7569. The two things might be worked together?—Certainly. In the case of the third year students of the science schools the apparatus to a certain extent that is used in the schools is made by them.

7570. Mr. STRUTHERS.—It is suitable for more advanced schools?—Yes.

7571. You would require more preliminary instruction in woodwork before you do that?—Yes.

7572. Mr. REDINGTON.—In what standard would you begin this practical teaching of science?—I should begin from the beginning, standard 1, the rule should be used for nearly a whole year in standard 1, a foot rule, which has centimetres on one side, and in this way the metric system could be introduced and our present system gradually abolished.

7573. In the Rutland Street School, is science taught in all the standards?—I think not until after the 5th.

7574. Professor FITZGERALD.—Were there any object lessons leading up to it in the lower standards?—I have never had anything to do with these object lessons.

7575. Mr. REDINGTON.—Is your scheme what is called course H in the alternative courses of the Code?—Yes.

7576. Is it carried out in many schools?—I cannot say except in the case of London; you mean right through from the beginning. No, I do not think so.

7577. Most Rev. Dr. WALSH.—You were asked as to the special advantage of having manual instruction in addition to elementary science; you said there was some difficulty in expressing in words what the precise advantage of the manual instruction is, the working in wood, for instance; but are you satisfied there is an advantage?—I consider so.

7578. Have you any doubt upon the point?—If I was asked to choose between the two, well, of course, I should say science, as I think there is more educational advantage in it, I do not care what part of science is taken as long as it is logical and the reasoning powers are used as well as the hands.

7579. When you attach so much importance to this actual experimental work of the children themselves, I suppose you have in view chiefly the elementary stages of science; your object is to induce a scientific habit of mind?—Yes.

7580. And to give them a good practical grasp of scientific methods?—Yes.

7581. But, of course, when that object has been attained, a larger scope may be allowed for a system of lectures?—Oh, yes, after a certain length of time I think a boy should be induced as far as possible to read books.

7582. You are speaking now of the special work of an elementary school, and not, in general terms, of the best way of going through a course of physical science, when you give such great prominence to the experiments being worked out by the pupils themselves, as distinct from the reading of text-books?—Yes, certainly; the best way of going through a course until he has got a good foundation, and is *leaving* a secondary school.

7583. You have mainly the elementary stage in view when you attach such great importance to the working out of experiments as distinct from the use of text books?—I attach the same importance until he leaves the secondary school.

7584. But it is of special importance in the beginning, until the pupil has got a good practical hold of scientific method?—Certainly.

7585. There is a question about the best way of making room for these branches of school-work in Ireland; I suppose something may be done by omitting subjects of secondary utility, formal grammar

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for instance?—Yes, I do not think grammar should be taught until the language is known.

7586. And the long exercises in the conjugation of verbs, "I might, could, would, or should have; thou mightest, couldst, wouldst, or shouldst have," you don't think there is much use in that sort of thing?—No, certainly not.

7587. You are probably aware that we have yet to make a beginning for these branches of work, such as elementary science, in our Irish schools; now there are many courses we might follow. I should wish then to know what you would think of this, it is a possible course, and it may be recommended by some people. Suppose we were to introduce a system under which no steps would be taken by the educational authority to see whether any experiments were made in the school from one end of the year to the other, and that an examination was held, but an examination only in writing, do you think that that would be of great educational advantage in the country?—It would be none.

7588. Would you go so far as to say that it would be almost better not to have science taught that way?—Unless you had some inspection.

7589. Suppose we had no inspection?—Oh, you would never get it done.

Mr. Edward M. Hance.

Mr. Edward M. Hance, Clerk to the Liverpool School Board, further examined.

7589a. There was one point that I wanted to make quite clear. The way in which the work that you will see here differs materially from what you have seen in almost every other part of the kingdom is that our manual instruction, as our science instruction, is an integral part of every child's course. Every child on reaching the prescribed standard goes into this work and does it as proportion of his ordinary work; so that we deal with it on a much larger scale, and therefore it is more elementary to begin with than you will probably see in other towns, Birmingham for instance, where the work is more confined to the boys who are ex-standard scholars, and therefore their work is more advanced work than some of ours. We begin entirely in standard 5; every boy has this course.

7590. Judge Shaw.—I think you said in answer to me that both elementary science and manual instruction was compulsory on every boy?—Yes.

7591. Captain Shaw.—You are not sure as to your statement about Birmingham?—They have progressed since I was there: when I was there it was all ex-standard scholars.

Judge Shaw.—In Hornsey I asked if manual instruction was compulsory, and the answer I got was that the question could not arise because the difficulty was to keep the boys away.

7592. Most Rev. Dr. Walsh.—The preliminary manual instruction,—or hand and eye training, as we have come to call it,—is in all the standards?—In all the standards.

March 30, 1897.

SIXTEENTH PUBLIC SITTING.—TUESDAY, MARCH 30TH, 1897,

AT 11 O'CLOCK, A.M.,

At the School Board Offices, Liverpool.

Present:—His Grace the Most Rev. William J. Walsh, D.D., in the Chair; The Right Hon. C. T. Redington, M.A.; Rev. Henry Evans, D.D.; W. R. J. Molloy, Esq.; and Captain T. B. Shaw, with J. D. Daly, Esq., M.A., Secretary.

Mr. A. T. Bott, M.A.

Mr. A. T. Bott, M.A., Senior Inspector of Schools to the Liverpool School Board, examined.

7593. Chairman.—Will you kindly describe to us your position in connection with the educational work of Liverpool?—I am Senior Inspector to the Liverpool School Board, and, as such, am generally responsible for the whole of the work of the schools. I examine them regularly in all departments.

7594. The school work in all departments?—Yes.

7595. You have nothing to do with the Government inspection of the schools?—No.

7596. In Liverpool there are two systems of inspection—one by Her Majesty's Inspectors and the other by the officers of the Liverpool School Board?—That is so.

7597. And there is an inspection by the Science and Art Department also?—Yes.

7598. Had you experience of the schools before the introduction of manual and practical teaching?—Not of the Liverpool schools. I came to Liverpool in the same year that the woodwork was introduced, so that to some extent I had, because the woodwork was not introduced universally at once, not for a year or two.

7599. So that you had experience of some schools before the introduction of woodwork?—Yes.

7600. And has the woodwork been introduced into these schools since?—Into all the schools practically.

7601. Kindly give us the opinion you have formed of the effect of the introduction of this practical teaching in the schools?—My opinion is that it has been wholly for good. I am quite sure it has had a good effect upon the work both of scholars and teachers. I am speaking of the introduction of manual work, and much the same remark would apply in regard to science.

7602. And when you speak of the manual work, do you confine yourself to the higher grade work—the working in wood?—Not necessarily.

7603. You have in Liverpool an organised, a graduated, system of manual instruction, leading up from kindergarten to the woodwork?—Yes; we have a variety of advanced kindergarten or hand and eye exercises, from standard 1 to standard 4.

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7604. Please tell us what those exercises are?—They consist of a variety of exercises. Our principle is to endeavour to cultivate a variety of faculties rather than to pursue one branch of work to a very high point of excellence. In that our system differs, I think, from that of some other towns.

7605. What exercises have you for this purpose?—We have here examples (*witness produced a book entitled* "Manual Training Exercises," by W. Hewitt, B.SC.). Proceeding, the witness said—We have here examples. In the first standard we have lath and bead laying, paper folding and tearing, and paper cutting and laying.

7606. What do you mean by paper tearing?—A square of paper is ruled, then folded and neatly torn, and afterwards placed in various shapes, somewhat as you see here (*exhibiting the book*).

7607. So as to secure a neat separation of the two portions?—Yes; it trains the eye and the hand, too.

7608. Without using a knife or scissors?—Yes; that comes later. A little clay modelling is done also. That is followed up in the second standard.

7609. The occupations you have described are for the first standard. Now, for the second?—Much the same kind of occupations, followed up by work of a little more advanced character, as you will see. There are designs. That is an exercise in paper cutting and mounting, that is to say, the papers are gummed, and on being cut out are pasted.

7610. This (*referring to an illustration in the book produced*) introduces the use of coloured papers?—Yes; colour comes in a little later.

7611. In what standard?—In standard 3.

7612. Kindly tell us what books those are that you have been referring to?—These are books (*producing two*) which were drawn up by Mr. Hewitt, who was formerly our Director of Science, and whom I think you will have before you.

7613. "A Graduated Course of Simple Manual Training Exercises for educating the Hand and Eye." That is the title of this book, which is published by Longmans, Green and Co., London. You have brought us now up to the third standard. There are two volumes. Is this first volume for the first and second standards?—For the first and second standards.

7614. Then the second volume begins with the third standard?—Yes.

7615. What are the nature of the exercises there?—There we have drawing with set square, and cutting paper into more difficult shapes; modelling in paper is also done. Then in the fourth standard we get wire-work, and cardboard modelling, and box making, as well as other exercises.

7616. Then in the fifth standard?—The woodwork.

7617. Had you metalwork in any of the schools?—Metalwork has been commenced to some extent with the children in the ex-seventh standard and a few of the better children in the seventh standard. But that is in an initial stage.

7618. But, generally speaking, it is not yet a portion of the school work?—Not yet.

7619. There seems to be no gap in your system from first to last. The practical branch of school work is attended to throughout in all the standards?—That is so. I have been speaking of boys; exactly the same course is allotted to the girls, except that in the fifth standard they take up cookery.

7620. You have not any woodwork for girls?—No.

7621. Now, as regards the grants from the Departments, the Education Department, of course, gives grants for kindergarten?—Yes, as part of their general system of grants.

7622. Then for the first, second, and third standards, this practical training is recognised as a grant subject under the head of "Suitable occupations"?—Exactly.

7623. How does the fourth standard stand in reference to the grant?—So far as I know, it brings no special grant.

7624. But in the fifth standard the Science and Art Department comes in?—Yes, and awards grants.

7625. So that, as far as the practical side of school work goes, the Education Department gives you no assistance after the third standard, in the case of boys?—That is so. I don't know that we can say they have aided in the first three standards, because they merely said "It must be done." I am trusting to my memory.

7626. It is recognised as a class subject under the head of "Suitable occupations"?—Yes, it may be.

7627. And there is a grant for each class subject?—Yes, if it is offered as a class subject.

7628. A shilling per unit of average attendance, as a fixed grant, and two shillings in case the work comes up to the standard "excellent"?—I think that is so.

7629. Then object lessons are taken. Coming to the science, to what extent have you scientific instruction in the schools—elementary science I mean?—In the infant schools we have ordinary object lessons. From standard 1 to standard 4, we have a course of elementary science lessons which we present as a class subject. That course was drawn out by Mr. Hewitt also, and it leads up to the specific subjects of mechanics and domestic economy in the fifth standard.

7630. Is that scheme described in the Code? There are a number of alternative schemes recognised in the school Code?—In the Code schedule, no.

7631. I observe there is a good deal of latitude allowed in the programmes of the English Educational Department?—Yes.

7632. Under the head of these class subjects and elementary science, there are six or seven different programmes, any one of which may be chosen?—Yes.

7633. Does your Liverpool system represent a further extension of that local liberty?—Yes. Our scheme is specially approved by the local inspector.

7634. But it has not yet been taken by the Department into its printed Code?—That is so.

7635. Of course your scheme must be approved by the local inspector before it can be put into practice in the schools?—Yes.

7636 Have we a printed account of your science scheme anywhere? But perhaps Mr. Hewitt would be better able to give us that?—I think the books here which contain the whole scheme would give you that, but Mr. Hewitt would give you an exact account of it.

7637. What books are these?—"Elementary Science Lessons."

7638. I see you have four of them?—Yes, one for each standard—first, second, third, and fourth.

7639. Now let me ask you to what extent is this elementary scientific teaching recognised and helped by the Education Department?—It may be taken as a class subject. It is taken by us as a class subject in standards 1 to 4,—grammar being taken in standards 5 and upwards to complete the whole of that class subject.

7640. I believe under the English Code you must have the same number of class subjects throughout all the standards in a school?—Yes.

7641. You must take one; you may take two; but whatever you take, in any standard, you must have the same number throughout. So you seem to take in grammar merely for the sake of filling a gap?—Our one class subject that we take universally through all standards is geography.

7642. In England, geography is an optional subject?—Yes. We take that and present it, and get a grant for it throughout. Our second class subject is a double one: it is elementary science in standards 1 to 4, and grammar in standards 5 and upwards. That we present and get grants for. As a matter of fact we teach more than that; we teach grammar in the lower standards necessarily, but we get no grant for it We do not present it as a class subject.

7643. You are at liberty to take more than two

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class subjects, but you cannot get grants for more than two?—That is so.

7644. You have spoken of geography. How do you teach geography in the Liverpool schools? Is it out of a formal treatise on geography, or by means of geographical readers?—We have geographical readers; the same readers in all our schools; but the teachers are not strictly confined to them, and indeed are expected not to confine themselves strictly to them.

7645. Are the children obliged to learn long lists of names, with the heights of mountains, and the length of rivers, and so on, as they are given in formal geography treatises?—I think I may say "no." Of course the children must learn some facts, but the lessons are not given in that way. The lessons are made as interesting as possible. The geographical reader is one published by Longmans for different standards.

7646. I believe that, in England, under the rules of the Code, you must have more than one reading book in each standard in your schools?—Yes.

7647. How many reading books have you in the different standards—in the lower standards, to begin with?—Two at least, but most of our schools have a third.

7648. Do those two differ in character?—Yes, one is geography and one is historical.

7649. Then, when you have a third?—It is of a literary and miscellaneous character. In the upper standards it is usually a play of Shakespeare.

7650. Not a mere reading book then?—Not a miscellaneous reading book.

7651. And do you not use reading books of that kind?—Oh, yes, up to the sixth standard probably as a third reader.

7652. But where you have only two, you prefer to have one geographical, and the other historical?—Yes.

7653. Whose readers?—There is a choice given to the teachers; they may choose Longmans', or Macmillan's, or Blackie's.

7654. Now, coming to another subject, how is the time made out for all this practical and manual instruction, and elementary science. Is any subject dropped?—No; when the subject was added the time allotted was two hours a week. That was not taken off any one subject. A re-arrangement of the time tables caused the loss of time to fall upon a number of subjects.

7655. The time was not made out by dropping another subject. The time table was re-arranged. Less time was given to some subject than had been given before. Was that it?—Yes; would you like an example.

7656. Yes?—For example here (*referring to a school time table*), I notice in one standard in the time table of the school—Brae-street School—fifteen minutes come out of recreation time; thirty minutes out of geography; thirty out of composition, and fifteen minutes out of dinner hour. That makes ninety minutes. The manual instruction does not cease till a quarter past twelve in most of our schools.

7657. On how many days a week have you manual instruction?—On every day in each centre, but for different schools and different classes.

7658. But for each pupil in a school?—For one hour and a-half actual bench work, and a half-hour's drawing additional in the school.

7659. And is the drawing not done at the centre?—No, at the schools. The only reason for that is that there is no convenience for this at the centre.

7660. You have now been comparing the time table as it stood before the introduction of this manual work—or rather as it would have stood without this manual work,—and as it stands now. Would it be too much trouble to put that for us into some kind of tabular form?—If it would be of interest to the Commissioners, I could give them a time table—the whole time table of every subject.

7661. Yes, that would be of use. It shows the amount of time you give to the other subjects, now that you have the manual instruction provided. When you spoke of the time for manual instruction as practically two hours in the week, you are speaking, I take it, of the woodwork?—Yes.

7662. But, in the elementary stages, had any subject to be dropped to make room for those exercises?—No.

7663. What time is given each day, by each pupil, to those preliminary exercises?—At first we tried two lessons of half an hour each a week. Some teachers found that each lesson was hardly long enough. The amount of material to be given out consumed time, and so finally some teachers preferred to take an hour a week at one time instead of two half hours a week. We don't, however, restrict them,

7664. But the time given in the week was an hour?—Yes.

7665. Whether it may have been given in one lesson or in two?—Yes. We were able to provide that hour in a similar way to that I have described already.

7666. The effect of the introduction of this manual and practical work has been good?—In my opinion it has.

7667. Has it had a good effect on the teachers?—Yes.

7668. Improved their skill in teaching?—Yes. I think that that atones for the loss of time. The teachers finding themselves with a little less time to do what they had to do, made up for it by increased tact and skill.

7669. Improved their methods?—That is another point. I think the scientific teaching has had a most important effect in that way, in improving their methods.

7670. As regards the children themselves, this variety of work gives great relief to the work?—The children go with greater zest to the other lessons as well as to these.

7671. It brightens them up?—Yes.

7672. I suppose they are more or less attracted to the school by this work?—I think decidedly it has had that effect, though not directly. I do not think a child goes to school on a certain day because it has to go to kindergarten, but its whole work is brighter and happier.

7673. When they are taught in this way, they look on it as a more natural thing to go to school than if they were merely kept there for hours with teachers hearing them repeat things out of books?—I was told only this morning by a parent that he could not keep his child away from school.

7674. So that this branch of teaching is one of the factors that go to make up your splendid record here in Liverpool in school attendance?—It is.

7675. Your percentage of attendance stands very high here in Liverpool?—Yes.

7676. It is 86 per cent, I think?—Yes, that is for the whole city.

7677. It was up to 86 per cent. on the date of the last triennial report of the Board—that was in 1894. It has probably improved since then?—Yes

7678. I suppose the machinery for enforcing school attendance is very perfect in Liverpool?—I daresay it is; but I think our Board has always relied more upon the internal effect of teachers in schools than upon the external pressure.

7679. You spend a good deal of money in connection with the compulsory attendance?—I think that is more in connection with the industrial schools.

7680. I think I saw £6,000 mentioned. But, notwithstanding all this outlay, you rely more upon the indirect method?—In our own schools we do.

7681. The teacher has some interest in keeping up the attendance in the English system. Some of the grants are made to the school by capitation on the average attendance?—The teacher has no personal financial interest with us.

7682. No direct interest, perhaps, but the manager has a direct financial interest?—Yes, that is so.

7683. And I suppose a manager would not be likely to retain as a teacher a person whose carelessness led to a falling off in the average attendance?—I think that is probably as you put it.

7684. I believe that you have day industrial schools to which the children are sent who do not attend school regularly?—Yes.

7685. Do you find that system work well?—Yes.

7686. I see there was an average attendance of 93 per cent. at these day industrial schools. That was an extraordinary result?—Yes.

7687. These are children that could not be got to attend an ordinary school regularly?—Yes. Of course they are under stronger compulsion.

7688. Then some of them, when they have shown a disposition to go to school, are allowed to attend an ordinary school. I suppose they regard that as a privilege?—Usually.

7689. The average attendance of those children was 88 per cent. of possible attendances, so they attended even better than the ordinary children, although the ordinary children attended exceedingly well?—I should hardly say that, because most of these children are older children, and you would have to compare their attendances with the others, including infants.

7690. At all events, they represent the worst type of children, as regards school attendance?—Very nearly the worst type.

7691. I suppose you rely very much upon the existence of these industrial schools for keeping up your school attendance?—Very largely. I think it will interest the Commissioners to know that at the present time we are widening the curriculum of these industrial schools to make them more uniform with the other schools.

7692. Now, to sum up all you have been asked. The advantage of the various branches of practical instruction is very remarkable in your Liverpool schools?—Yes.

7693. You think it improves the skill of the teachers, and that it gives interest to the children, makes their time in school happier, and I suppose opens up their intelligence?—Yes.

7694. As some one told us in London, it "sharpens their wits"?—Yes.

7695. So that all round there is an advantage. Was there any opposition encountered when this system was introduced, either on the part of the parents of the children, or on the part of the trades' unions?—I think very little; practically none.

7696. Was there any opposition on the part of the teachers?—Practically none. We took care always to carry the teachers with us. We do that in everything. There had to be a little adjustment. I remember going to certain schools that had not performed the drawing sufficiently well for the manual instruction, and inducing the teachers to take a little more interest in it.

7697. That is a point you attach great importance to, that the drawing should be connected with the manual instruction?—I think it should be not only connected in those standards in which we have found it, but I think it should be led up to by being taught in the early standards also.

7698. Of course there is some elementary drawing in the kindergarten?—Yes.

7699. Then you wish to have the drawing graduated and kept in touch, as it were, with the other work, the manual work, all through the schools?—I like to see it done in connection with the Science and Art Department, as it is with us, or in some other methodical way.

7700. And to have everything drawn by the children before it is made. Would you apply that to those exercises in which the children merely arrange things, such as pieces of paper or blocks of wood, in some definite order?—No. I think that very much depends on the nature of the exercise.

7701. But as far as possible you would have everything drawn in the first instance?—Yes.

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7702. The aim of all this manual and practical instruction, I suppose, is educational?—Yes.

7703. We find in some places a tendency to make objects in the school with a view to an annual exhibition of what the children can do. Do you think that a useful thing?—Only so far as it is a stimulus and help to the children. I deprecate that kind of thing very much; I think it leads to the production of objects for the sake of exhibition instead of what is more important, bestowing attention upon the educational value of the work.

7704. It leads to more attention being given to the objects produced, than to the processes by which they are produced?—It is a danger, I think, attending anything of this kind.

7705. Still it may be useful in keeping up the interest of the pupils?—Yes; and so far it is legitimate.

7706. But all this should be kept subordinate to the general principle of general educational utility?—Yes.

7707. Do the teachers fully enter into that true view of the case, that the object of all this work is educational?—On the whole, they do. It depends very much upon those who have control of the teachers. If I, as an inspector, were to ask for very perfect exercises requiring great skill, the teachers would probably immediately set to work and produce them regardless of their methods.

7708. The more fully the teacher enters into this, the more effective the teaching is?—Yes.

7709. Well, now for the science instruction. Of what kind must the apparatus be?—I am very strongly of opinion that for the educational effect it should be as simple as possible. Quite apart from the question of cost and convenience, there is an advantage in the apparatus being quite of a simple nature.

7710. As far as possible, it may be made by the children themselves?—As far as possible.

7711. And, possibly, in the lower standards it might give them some interest in the apparatus if they knew it was made by other children in the same school?—Yes.

7712. We find a difficulty about one important instrument, the balance; it is a costly portion of the outfit?—Yes, doubtless, certain balances will be more costly than others. The costly items in the outfit should be as few as possible.

7713. Mr. Rooper, one of the inspectors in London, mentioned to us a very cheap form of balance which he said was practically sufficient. You, perhaps, have no experience of it. It could be made for two pence by the children themselves?—There are so many kinds of balances, I am not quite sure whether I know the one you speak of.

7714. Captain Shaw.—Do you require a balance in the lower standards at all?—The children as a rule do not use it, it is used by the teacher. A child may be called out to use it, but we have not put them in the hands of every child in the class.

7715. Chairman.—Of what character should the demonstrations be in this elementary scientific instruction? It should be simple, I suppose?—It should be simple, and lead children first of all to observe the facts, and subsequently to make their deductions.

7716. It should include a good deal of experimental work. To what extent are the children here taught to make experiments for themselves, and not to depend merely upon demonstrations by the teacher?—I think it is practically found impossible to do that to any extent. The children see the things, and they are such as they might do, but as a matter of fact, with a class of sixty, we cannot let every child do experiments.

7717. How many children have you in a class?—Sixty is an ordinary number.

7718. What is the average number for one teacher to take charge of?—It varies a good deal, but a certificated teacher is expected to be able to deal with fifty or sixty children.

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7719. Not seventy?—No.

7720. I see that the number mentioned in the Code is sixty, for one teacher, but I think the sixty is now being reduced to fifty, and that the Education Department will henceforth insist upon fifty, and not more, being taught by one teacher, from the September of the present year. Are you aware that is the case?—I believe that is so.

7721. Will you kindly look at this (*the Chairman handed the witness a copy of the Code for* 1897). Look, please, at clause 73. Kindly tell us now the meaning of that article in the Code, as to the number of children?—The number sixty is to be reduced to fifty for the principal teachers.

7722. That is, from next September, the English Education Department will not allow more than fifty children to be left under the care of one single teacher, so that if there is only one teacher in a school of anything over fifty children, the Education Department in England will consider it an insufficiently staffed school, and will discontinue the grants: do I state it correctly?—That henceforth is the English rule.

7723. Now as to the importance of these practical branches: you consider them a useful addition to the other work of the school?—Yes, but I think there are some places in England at the present time where there is a danger of running to the other extreme, and forgetting the necessity for literary and mathematical education. It is not so in Ireland, I think. But we, in England, may reach a point where we may over-do the industrial side.

7724. One of the objects in introducing this practical work into the school is to improve the literary and mathematical work. Do you consider there should be special teachers for this practical work?—Yes, I think it is often found inevitable.

7725. But suppose there has to be a special teacher, do you think it is better to have an ordinary school teacher set apart for this work, or to secure the services of a highly qualified artisan?—I should prefer the ordinary school teacher if he is skilled, most decidedly.

7726. In the Swedish Sloyd system, the educational side of the work is kept well in view?—I have visited schools there, and found that so.

7727. Were you at the training school in Nääs?—Yes.

7728. Did you go through a course of Sloyd there?—Yes.

7729. Before you were in Liverpool?—Yes.

7730. How far does your woodwork system in Liverpool go on the lines of the Sloyd in Sweden?—There is a fundamental difference.

7731. There are probably some points in common, and some points of divergence. What are the points of difference?—The fundamental difference is this——

7732. Perhaps all will come out more clearly if we first take the points that are common to the two. I suppose in both countries the primary aim of the work is educational?—Yes.

7733. Is there in England, as there is in Sweden, a carefully graduated set of exercises—models, as they are called?—Yes.

7734. You, in England, distinguish between mere exercises and models?—Yes.

7735. Do you in the Liverpool system—as they do in Sweden—exclude division of labour. Must each object be the work of one individual child?—Yes.

7736. It is insisted on, as in Sweden?—Yes, but we do not always complete an object. It is sometimes merely an exercise, but it is the child's own work, and not to any extent the work of the teacher.

7736. So that if the teacher has to correct the child, to show how the work has to be done, he must show that to the child on a distinct piece of wood?—Yes.

7737. These then being the points of agreement, let us now take the points of difference?—The fundamental difference, I think, as far as I can see, is that our system in Liverpool to some extent deals with abstract exercises first, in order to give the children some facility before it allows them to approach a complete object. The Sloyd, on the other hand, uses the complete object from the beginning in order to give the exercises.

7738. It begins with very simple objects, and does not require any preliminary exercises. Is there any difference as regards the tools used?—Only such differences as I think ought to be found in two different countries.

7739. The Sloyd knife, of which we hear so much, is the ordinary knife in common use in Sweden; and it would be to some extent a departure from the fundamental principle of Sloyd if people were to say, "You must work with the Swedish knife in England?"—We work with ordinary joiner's tools.

7740. What do you begin with?—With a plane.

7741. Mr. REDINGTON.—You don't use a knife at all?—The chisel is the principal tool.

7742. CHAIRMAN.—On what grounds do you consider it is preferable to have a school teacher rather than an artizan to teach this practical work?—Supposing he is thoroughly qualified to do it, it seems to me, in the first place he has a better individual knowledge of the child through having control of him altogether. In the second place, I think he is likely to have better power of discipline, man for man, and in the third place, I think he is probably likely to take a better view of the balance of the importance of his subject—a specialist always thinks his subject is the only one: in the fourth and last place—and in this I refer especially to science—I think this work very materially affects the teaching of the ordinary teacher. I believe that our teachers have very greatly improved in their teaching capacity since we introduced elementary science, and required them to take it.

7743. In reference to the bearing of this work upon the other work of the school, there is an advantage in having an ordinary teacher?—Yes. Since our teachers had to take that course, and deal with classification, observation, deduction, and exact power of expression, I believe their teaching in every branch has improved.

7744. I suppose the educational aim of the manual work is more likely to be kept steadily in view when the work is done by an ordinary teacher than when it is done by an artizan outside?—I should think so.

7745. The children are then more likely to look upon it as an integral part of the school work?—Yes, I should think so.

7746. Mr. REDINGTON.—Do you get fees from the Science and Art Department for the manual work?—Yes, we get grants from the Science and Art Department.

7747. And how are you paid for the elementary science?—We get paid for that as a class subject from the Education Department.

7748. Is there any science taught in the fifth and sixth standards?—Yes, what we call mechanics. Our syllabus is, as a matter of fact, a little wider than that ordinarily understood as mechanics; it deals to some extent with physics, and, for girls, domestic economy.

7749. As to training the teachers, say, in elementary science, how do you manage that? Are they taught in their training colleges to give lessons in elementary science?—Not exactly to give lessons in elementary science. They study science as pupil teachers, and as students in training. When this series of elementary science lessons was inaugurated by Mr. Hewitt, he assisted our teachers; he gathered them together and gave a few lessons and assisted them generally.

7750. How have the teachers who give lessons in cardboard work and those other occupations been taught the subjects?—In much the same way, except that they have had no thorough training.

7751. That is to say they have gone through a course in those subjects in the evenings or on Saturdays?—Some of them have, but the great majority of our teachers have not. The exercises are of so simple a nature that with a little assistance from Mr.

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Hewitt, and help from one another, they are enabled perfectly well to do it. It is of so simple a nature that they can do it in that way.

7752. Do you find any of the teachers objecting to teaching this cardboard work and paper folding work?—At first there was a little. Occasionally one heard a murmur that they had got a little too much to do, but I think they soon found the advisability of it, and I think they like it now. There was no real difficulty.

7753. You never heard the objection that the subjects had no real educational value—"merely twiddling bits of paper"?—I will not say I never heard it, but on the whole I think the teachers think it does the children good, and that it has an educational value.

7754. Captain SHAW.—What are the total school hours during the week?—Including the time allotted to religious instruction, twenty-seven and a half hours.

7755. And how much of it is devoted to religious instruction?—Nearly three hours.

7756. Of the remaining time how much is devoted to drawing in the week?—It varies. The minimum is one and a half hours. The Science and Art Department requires that. I should say usually two hours is given. And in those standards which take woodwork, another half hour at least is allowed for that special drawing. Then of course there is some drawing in connection with the kindergarten.

7757 What time is devoted to hand and eye training in the lower standards?—About one hour a week.

7758. And to the object lessons?—Probably an hour or an hour and a half. Our teachers are free to some extent to arrange their time tables. We don't restrict them too narrowly. I promised to put in a time table with an analysis.

7759. What specific subjects do you take in the upper standards?—For boys, mechanics; and for girls, domestic economy.

7760. Is that the only specific subject for boys?—That is the only specific subject, but we have in the seventh and ex-seventh standards other science lessons, not as specific subjects, but in connection with the Science and Art Department.

7761. Do you take algebra and Euclid?—Not in more than one or two schools, and then only at the very top in the seventh standard.

7762. Then as regards the science instruction, it leads up more or less to passing the Science and Art examination in the seventh standard, I suppose?—It does lead up to that, but I think it is fairly complete in itself even if the children do not take the Science and Art examination.

7763. But it has been partly influenced by the necessity of getting money from the Science and Art Department?—I do not think I should say that.

7764. The main difference between it and some other methods of teaching the subject is that you do not teach the children to discover for themselves. They are not led to make independent investigations?—You mean that they do not handle the thing themselves?

7765. That they are not set a problem and asked to suggest how it is to be found out?—That method of teaching is constantly pursued.

7766. It only results in words; it does not result in deeds?—We do not give the things into the children's hands. The problem is set by us.

7767. Rev. Dr. EVANS.—I should wish to get some light upon the relations between the Board's inspectors and Her Majesty's inspectors. The question I would put is—What are the relations between the Board's inspectors and the Government inspector?

CHAIRMAN.—Remember there are three sets of inspectors—the School Board's, Her Majesty's, and the Science and Art Department's inspectors also.

Witness.—I think I may say that the Board's inspectors in Liverpool fill an executive office. They are the eyes and hands, so to speak, of the Board. The Board members cannot of themselves have that intimate knowledge of every school that managers might have who have only one school to manage. The Board looks to its inspectors for all information upon the internal work of the schools. For that purpose the Board's inspectors examine the schools regularly; but they do a very great deal more than that.

7768. Rev. Dr. EVANS.—I do not want the full account of the School Board inspectors' work, but just so far as their duties bring them into co-incidence with the Government inspector?—The Government inspector and the Board's inspector do not come into contact, except through the annual report of the Government inspector. For example, if the Government inspector states that something is wrong or bad in a certain school, the Board's inspector would be expected to give an account to the Board as to why that was so, and to see that it was improved in future.

7769. Is any account taken by the Education Department of the Board School inspectors' reports?—None whatever.

7770. They do not look at them?—As far as I know they do not see them.

7771. What use is made by the School Board of their own inspectors' reports?—The Board get their own impressions of the schools very largely from those reports. They also award bonuses to their head teachers at the end of each year, and in the distribution of that their inspectors' reports play an important part.

7772. Do the School Board inspectors ever hold anything in the nature of an investigation. Suppose there are some irregularities in the school, some faults or complaints regarding the teacher, would the inspectors investigate those matters?—Yes; but nearly always, I think I may say always, in conjunction with the local managers of the school, or members of the Board.

7773. Who controls the time table?—The Board, or rather the School Management Committee. Every time table is drawn out by the head teacher, and is sent to the Board's inspector. If he has any remarks to make upon it he refers it back to the teacher. Finally, when it is approved, and in conformity with the general rules of the Board, it is laid before the School Management Committee, who finally approve it.

7774. Have you ever found inconvenience owing to the two classes of inspectors, or rather the three, dealing with the same teachers in schools?—None whatever, except, I think, on one occasion lately, when we happened to fix a certain day for our examination; on that particular day Her Majesty's inspector made what is known as his surprise visit. I then withdrew and allowed him to go on and examine the school. I examined the school on another day.

7775. You see his reports?—Yes.

7776. And has your opinion ever differed from his?—Very seldom indeed, never to any great extent.

7777. He does not consult the Board's inspectors in any way in forming his own opinion?—No.

7778. He judges simply by his own observation and examination?—That is so.

7779. When you said there was a danger of manual instruction somewhat eclipsing the other parts of the school curriculum were your apprehensions entirely caused by your knowledge here in connection with the Liverpool School Board?—No, but rather from general information one gets. It seems to me there is a little tendency at the present time to try to teach the child in his school-life everything that he may possibly want in all contingencies of his future life, a thing both impossible and undesirable.

7780. Well, when a subject is introduced for the first time, and people have to be convinced of its importance, I should not think it strange if there

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were a little extra zeal at the start. It would not, in my view, diminish the value of manual instruction if I found that in the starting of it there was a little extra zeal. Such intensity may unwittingly, without any design, draw away the minds of teachers somewhat from the other subjects, but that will correct itself, or can be corrected by the controlling authority?—Quite so.

7781. Mr. MOLLOY.—How many schools are there under the Liverpool School Board?—About thirty.

7782. That is the total number of schools?—Yes.

7783. I thought the number was much larger?—Of course each one of these schools contains many departments. Some of them contain four, and even five, departments. Continuation schools are an addition.

7784. Counting each separate department as a school, what is the number under the jurisdiction of the Liverpool Board?—About 100. I could give you the exact number presently.

7785. Are the hand and eye training, manual instruction, and elementary science teaching to be found in all the schools under the Liverpool Board?—Yes.

7786. These subjects are virtually compulsory?—They are.

7787. How did the teachers who were in charge of the schools before the introduction of this manual instruction system acquire a knowledge of it?—Do you refer to the advanced kindergarten or the woodwork?

7788. Rather the woodwork?—That is taught, as I said before, by special teachers, and they have obtained their knowledge outside the Board altogether by attendance at classes, some at University College here.

7789. Do the literary teachers take part with the specialists in the instruction in woodwork?—No.

7790. They however give instruction in drawing?—Yes.

7791. That is perhaps the only branch?—Yes; except of course advanced kindergarten.

7792. CHAIRMAN.—Who gives the instruction in the University College?—One of the professors. I am not quite sure who does it.

7793. Captain SHAW.—Mr. Hewitt will be able to tell that.

7794. Mr. MOLLOY.—Were you familiar with the course of instruction in infant schools prior to the introduction of the kindergarten?—I cannot say I was.

7795. Are the conversational object lessons an integral part of the instruction in all infant schools?—Yes.

7796. What particular part do they come in at?—The conversational object lesson is a well known thing in the syllabus of the infant schools, and is brought out in the object lessons and in the kindergarten too. I have seen teachers for instance in an exercise in kindergarten work asking the child many questions about it and getting the child to talk about it—the shape, the size, and the colour.

7797. Is physical drill a constituent part of the work in every infant school?—Yes.

7798. Do the infants attend continuously throughout the entire school session of three hours or two and a half hours?—Yes.

7799. These are very long hours when the infants are obliged to attend the whole of the time. Have you any experience of any of the voluntary schools?—I have had experience all my life of voluntary schools outside Liverpool.

7800. Was manual instruction carried out in those schools?—No, I was just about to introduce it in the school I was at, when I came to Liverpool. I had actually commenced it.

7801. CHAIRMAN.—In a voluntary school?—Yes.

7802. Mr. MOLLOY.—Are all the appliances for manual instruction and elementary sciences supplied free to the pupils and if so by whom?—Yes. By the Board.

7803. And in addition the children pay nothing whatever for school-books?—They only pay for any books they desire to take home, as a rule little or nothing is paid by the children.

7804. Just one point with regard to standards. Payment is made by somebody or other up to standard three, and again for standards five, six, and seven. What about standard four? Is any payment made for it?—None directly, unless you can consider it is paid for in the general school grants. You would gain no less money if you omitted it.

7805. Does it gain anything as a class subject?—Not unless you offer it as a class subject.

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Mr. WILLIAM HEWITT, B.SC., Director of Technical Instruction to the Liverpool City Council.

7806. CHAIRMAN.—I believe you were chief science instructor to the Liverpool School Board. How long did you hold that office?—For about seventeen years.

7807. Captain SHAW.—You resigned that position?—About four years ago. I am now director of technical instruction to the City Council.

7808. CHAIRMAN.—You had experience, I suppose, of the Liverpool schools before the introduction of elementary science teaching and before the introduction of manual instruction and woodwork?—I was appointed in the first instance to organise the science instruction in the upper standards in 1877.

7809. When you were appointed to that office, in what condition were the schools of Liverpool as regards these particular branches of work?—It was only in exceptional cases that any systematic work in science had been taken.

7810. First take the manual instruction,—but perhaps there was no instruction in woodwork at that time, was there?—Nothing at all.

7811. Was there kindergarten in the infant departments?—Kindergarten was in most of the infant departments.

7812. Was there anything done at that time to continue the kindergarten in a more highly developed form into the lower standards?—Not to my knowledge.

7813. As regards science teaching, was there anything of science taught in the schools at that time?—I think there was nothing of a systematic kind in any of them.

7814. What led to this branch of work being taken up by the School Board?—In 1877 the School Board had for some time been considering the desirability of introducing systematic science teaching, and when they decided to do so, I believe they made inquiries of persons connected with the Science and Art Department and others, and ultimately resolved that they would introduce this system of visiting teachers for the upper standards of their schools.

7815. This of course was long previous to the holding of the last Royal Commission on Education in Elementary Schools and the Royal Commission on Technical Instruction. The Board acted on its own initiative?—Entirely.

7816. What was the result of your appointment; to what extent were you able to have this branch of school work introduced?—The Board introduced into all of their schools science teaching in the fourth, fifth and sixth standards; in the case of the boys' schools, taking the subject in the Code known there by the name of mechanics, but which we worked out somewhat originally so as to make it more of a fundamental and general branch of science. In the girls' schools we nominally took domestic economy, but really the fundamental principles of chemistry and physics as a foundation for domestic science.

7817. In what standards was that introduced in the girls' schools?—In the fourth, fifth and sixth standards, as in the boys' schools. At that time the sixth was the highest standard.

7818. Was there anything done for the first, second and third standards?—Nothing systematic.

7819. After some time the Royal Commission reported in favour of the introduction of these practical subjects into the school work generally, and to a certain extent they had before them, as a model, what was done in Liverpool?—They had.

7820. As a result of the report of the Royal Commission, what was then done in Liverpool for the extension of that work?—The Board decided to introduce into their schools elementary science lessons so as to bridge over the gap between the object lessons of the infant schools and the science lessons of the upper standards, and they also decided to introduce manual exercises of an elementary kind into those lower standards to bridge over the gap between the kindergarten work of the infant schools and the woodwork which had previously been introduced into standards five, six, and seven.

7821. Had they introduced the woodwork into standards five, six, and seven, before the report of the Royal Commission?—No; it was after the Royal Commission's report, but it had been in view for some time before it was introduced.

7822. Did they introduce preliminary exercises about the same time?—Yes.

7823. You have not told us anything about drawing. What branch of drawing was taught in the schools at that time?—Drawing was pretty generally taught in the boys' schools, but in few or none of the girls' schools.

7824. I think in the beginning, or very soon after the beginning, of 1871, drawing was introduced as an optional subject in all departments other than those for infants?—Yes.

7825. In 1880 it was made compulsory in all such departments?—In the boys' schools, I think.

7826. Only for boys; I understood it was for both. It was not until 1886 that drawing was introduced into the Code of the Education Department as a class subject. Then I see that the Board decided that boys should be taught the subject in accordance with the scheme issued with the Code, and in the case of girls that it should be taken as an optional subject, if the managers of the school or the Board considered it would not interfere with the efficiency of the teaching in other departments?—Yes.

7827. Those regulations still remain in force as regards the boys?—I believe so.

7828. When did the grant begin to be given by the Science and Art Department?—I cannot say.

7830. Will you kindly put the date in?—Yes. [According to present system, in 1887.]

7831. You have no special official connection with the drawing department?—No.

7832. Have you with the manual instruction department?—I had something to do with the introduction, but when the Board appointed a special director of that department, my connection with it officially ceased. That director is Mr. Pearson.

7833. Your official connection was with the elementary science throughout the schools, and with the hand and eye training up to standard five?—That is so.

7834. You were in charge of the organisation of this department—the introduction of the teaching into the schools?—Yes.

7835. Had you any special difficulty to encounter in introducing it?—No more than what is usually experienced in introducing an additional subject into a school course.

7836. Had you any evidence of a feeling of opposition amongst the parents?—No; I think on the contrary it was welcomed as soon as it was introduced, by both parents and children.

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7837. It has always, I believe, been a popular branch of school work with the children here in Liverpool?—Yes.

7838. As regards the teachers, were they opposed to it?—It was the first occasion in the Liverpool schools that an outside teacher had been brought in to teach a subject, and naturally a new principle like that being introduced led to a certain amount of jealousy on the part of the school teachers, because they treated it at first somewhat as a want of confidence on the part of the Board.

7839. They disliked having outside teachers brought in to teach this special work?—Yes.

7840. Did they ever go the length of saying that this sort of work was not in place in elementary schools, and that a new set of schools should be set up all over the country to deal with these special branches of work?—No.

7841. To what extent were special teachers brought in?—The whole of this work was taught by specialists.

7842. We must bear in mind that we have different branches of work to consider. First, there is elementary science teaching; secondly, there is the manual work in wood; and thirdly, the practical exercises that may be called hand and eye training, leading up to the woodwork. Were special teachers required for all these?—I was speaking of the introduction of science teaching. In the upper standards that was done entirely by specialists.

7843. But in the earlier standards, who had charge of the scientific work—the object lessons?—When that was introduced, it was given entirely into the hands of the ordinary teachers of the school.

7844. Had the teachers any objection to undertake this new branch of work?—I think not; it was simply systematising work they had been doing.

7845. You have a special scheme, I understand, for this elementary science?—At the request of the Board I drew out a scheme to run through the first four standards.

7846. And yours is the system on the lines of which we have these manuals. There are four parts for the first, second, third, and fourth standards. This is the title of the manuals, "Elementary Science Lessons: being a Systematic Course of Practical Object Lessons illustrated by simple experiments." The books are written by you and published by Messrs. Longman. There are four little volumes, one for each standard?—I should say that along with the introduction of science teaching into the schools the Board also introduced, as an essential part of their scheme, science classes for their pupil teachers, and the subjects which were chosen for those science classes were chosen distinctly so that they should train the teachers to take part in this work in the schools in the way of recapitulating the lessons. That system developed as time went on, and when the lessons were introduced into the lower standards the teachers, especially the younger ones, had had a certain amount of training in science, and the endeavour was simply to try and show them the method rather than to give them the matter.

7847. To instruct them in the method of teaching?—Yes.

7848. To what extent is work of that kind done in the training colleges, as far as you know?—The work in the training colleges so far as I know it, has been confined very much to the working at some of the subjects under the Science and Art Department, and has not been specially arranged to train the teachers in proper methods of teaching science. There has been too little practical work and too little of method.

7849. And too much of the mere teaching of the various subjects to the teacher?—That I believe is the case.

7850. Apparently that is a defect that runs through the work of the training colleges generally?—With very few exceptions I think you may say that is the case.

7851. They are organized largely on the basis of

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preparing Queen's scholars to pass certain examinations?—That is so.

7852. Too little attention is given to instructing them in the art of teaching?—That is so.

7853. Who gave the lessons to the pupil teachers for the schools here?—Myself for the most part, and, as the classes increased, other science teachers were gradually employed.

7854. That was a new element of expense in connection with the work of the elementary schools of Liverpool; of course it was paid for out of the rates?—Yes, but paid for in part by the grants earned from the Science and Art Department.

7855. These grants would not be sufficient in themselves to cover that expense?—No.

7856. Now has any grant been made to the training colleges to enable them to undertake work of this kind?—The Science and Art Department make them a grant on the results of the examinations.

7857. But for this special work of the training of teachers for the teaching of science, I think no grant is given?—I believe not

7858. I suppose the work would be largely facilitated in the training colleges if some grant were given, such as the School Board can have from the rates?—I have no doubt that that would facilitate it.

7859. When people have a certain amount of money to spend upon a certain branch of work, they are not likely to take up additional branches unless they get additional funds?—Exactly.

7860. And that seems to be the condition of the training colleges. Now as to another point. Several of the exercises of the hand and eye training are adapted for class work at the ordinary desks, are they not?—Yes, all of them.

7861. And can be done under the ordinary school teacher?—Yes.

7862. How many pupils can a teacher take charge of for this manual instruction work?—I think it is not fair to expect a teacher to deal efficiently with more than about forty.

7863. Are you speaking now of the manual training in the higher standards, or of the simpler exercises in the lower standards?—Of the exercises in the lower standards.

7864. Of course when we come to the higher standards the work cannot be done at the ordinary school desks?—No.

7865.—How many pupils can a teacher take charge of in that case?—After going carefully into the matter I found that if the standards were fairly of one grade the teacher might manage thirty-six. I believe it has been found, as a matter of practice, that if the students begin to diverge very much that number is probably too large.

7866. Some one has remarked there is rarely any limit to the number of pupils that an incompetent teacher may take charge of?—Probably.

7867. But you were speaking of work in the hands of a competent teacher?—Certainly.

7868. On what principles do you base your scheme of manual training exercises? When framing it what principles had you in view?—I had several points in view. In the first instance I felt it was very desirable that drawing should be an important element in the course, and as far as possible that the drawing lessons of the children, which they took in the ordinary course, should be associated with and utilized in connection with these manual training exercises.

7869. I suppose you had this in view, that in the graduation of the exercises over the different standards you had to bear in mind what the children could do in drawing in those same standards?—Yes. Then I felt it was very desirable that those lessons should also run more or less parallel with the elementary science lessons of the same standards, and where it was possible to make a connection between them I endeavoured to do so. I regard the little conversations which I suggest should be taken at the commencement of most of these manual training exercises as a most valuable assistance to the object lessons. In fact my subsequent experience has led me to attach considerable importance to them.

7870. These conversational exercises?—These conversational exercises.

7871. What is the special value of the conversational object lessons?—I think you secure the confidence of the children when they have some material in their hands—something which is familiar to them. You can the more readily get them to talk to you about it, and to express themselves, and to observe and give you the results of their observation with the simple materials than you can by formal object lessons.

7872. It is sometimes mentioned as an objection to practical scientific work in schools, that it interferes with the work of English composition—the power of children to express themselves with propriety in their own language. I take it that these conversational exercises get over a good deal of the difficulty that may exist on that score?—I think they are a most valuable assistance to the English composition.

7873. To what extent do the children take part in the conversation; is it merely that the teacher holds up a flower and asks "What is this"? and the children all cry out "a flower"; that is not a conversation?—Not if it stops there.

7874. If it is merely answering particular questions, the answers to which they know already?—That is scarcely what I mean.

7875. What, precisely, do you mean by this conversation?—Suppose the children were working with a square of paper, I think that the teacher could very well and usefully spend a few minutes at the commencement of the first lesson by letting them examine their squares, letting them, if it were the first time it was introduced, explain to her how they knew it was a square—how they could test it and prove to her that the sides were equal. Suppose they were asked to double up the square I would like them to speak to the teacher and tell her something of the division of the square into halves, and how if it were again equally sub-divided they would get another shape also with a distinctive name.

7876. You would not wish to have the children merely answer questions put by the teacher?—Exactly; but to exercise the observation of the children.

7877. And to get the result expressed in their own words?—The teacher to do nothing but direct the conversation.

7878. Captain SHAW.—And the answers given in complete sentences and not in elliptical phrases?—As far as possible.

7879. CHAIRMAN.—In Birmingham they attached the greatest possible importance to the children answering always in complete sentences?—I think you will find I have mentioned that in my little books as a most valuable thing.

7880. If the teacher said, "Is this a pencil"? it would not be regarded as a satisfactory answer if the children said "Yes." The children should say "Yes, it is a pencil." It seems a somewhat cumbrous and stilted form of expression?—I think it is possible to carry that too far. But when they have a statement to make, then let them make it complete.

7881. For instance, you do not always answer my questions now in complete sentences. You had in view also that this department of work should afford mental as well as manual training?—That is what I meant largely by these conversational exercises.

7882. And you aim at producing thoughtfulness, and not mere manual dexterity?—That the children should be required to talk about what they were doing.

7883. Have you any definite opinion upon the question of employing ordinary school teachers, rather than artizans, as teachers of this work—I don't know whether I asked you that question before?—In connection with the hand and eye training and the object lessons I think it is almost necessary and very desirable that they should be given by the ordinary teacher of the school. In connection with the science lessons to the older scholars I think that in most cases it is necessary that they should be given by specialists; the ordinary teachers of the schools, even if they had the necessary practical training, not having the time to prepare the lessons and the necessary illustrations. But I should like to qualify that by saying that if there be a specialist on the school staff, and if that specialist has the apparatus and the time to prepare the lessons, I think the training can then be left with very great advantage in the hands of that teacher. But only in those special cases. In connection with the woodwork, I think all the experience goes to show that a school teacher with the necessary knowledge of the subject forms the best instructor.

7884. Especially in securing that the educational aim should be kept in view?—That is so.

7885. The primary object in your view of the case is not the production of a piece of finished work, but rather the cultivation of certain faculties?—I attach more importance to the steps through which the exercises are carried, than to the actual completion of the objects.

7886. Does the work in your system consist largely in the production of finished objects?—No, they are exercises for the most part.

7887. Are they exercises that lead up to the making of complete objects?—In very few cases. Indeed, in the hand and eye training lessons, one is rather laying foundations which will afterwards be developed in the woodwork exercises.

7888. You are laying the foundations then?—Yes; laying the foundations. We begin with simple paper work, tearing by the fingers, and going up to work in the fourth standard with a knife and ruler.

7889. How far do you think it possible to make room for anything like original treatment of design by the children?—I think you can do that gradually almost from the first. After the children have torn their paper or cut their paper into the number of pieces you require, then they can be allowed, I think, to suggest some method of symmetrical arrangement. In the same way when you come to the colouring with crayon, the selection of the colours is left with the children.

7890. Of course they have some instruction in the principles that regulate the combination of colours?—As a rule, after the pieces are produced there is one pattern they lay to the direction of the teacher; the teacher then allows them, if they can, to suggest some other arrangement for themselves.

7891. And if there is anything contrary to artistic principles in the arrangement which they suggest?—The teacher would point it out.

7892. And would tell them why the thing was wrong, and try also to induce them to give a reason for this themselves?—Yes.

7893. What about the cost of the apparatus and materials required. First, as regards these object lessons, very little cost need be incurred in connection with them?—In the case of the elementary science lessons a teacher who knows his work at all will be able to make use of a very large number of things that already exist in the school. But sets of apparatus have been prepared for these lessons, and they run from about one guinea in the first standard to £2 16*s.* in the fourth standard.

7894. That would be the outfit required for a whole school or class?—For a year's work for a class of about forty children.

7895. How many lessons in the week would that class of forty get?—As a rule one likes to see the subject taught twice a week. Although there are only thirty-six lessons arranged for in each course, one likes to see the subject taken more than once a week, if possible.

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7896. But twice a week would be an outside number, and quite satisfactory to you?—Quite.

7897. This apparatus would be available for a number of classes each week?—Yes, for several classes in the same school, or if the scheme were worked upon the centre principle.

7898. Do you work upon the centre principle in Liverpool, that is, having the apparatus fitted up in a place to which the children may come from different schools?—In the upper standards where a specific subject is taught the apparatus is distributed from a centre and taken by the specialists. But for the elementary science lessons each school is supplied with its own apparatus.

7899. Then is it lying idle there for the greater part of the week?—In schools such as we have in Liverpool, there will probably be object lessons given on every day in some of the classes.

7900. You say that the cost of the apparatus is a guinea for the first set?—Yes; slightly more in the second, a little more in the third, and a little more still in the fourth.

7901. Captain SHAW—This is capital expenditure?—Yes.

7902. CHAIRMAN.—In subsequent years there would be some expenses for renewals?—Very little in connection with these elementary science lessons. Practically none.

7903. We have been speaking now of the elementary science lessons. For the advanced science lessons the cost would be somewhat higher. But the apparatus is available for a number of schools?—Yes, that is so.

7904. You do not find that your arrangement gives rise to any great inconvenience or any excessive breakage?—No, not with care. It limits you to some extent in the choice of your illustrations.

7905. But for the purposes of an elementary school that can be got over?—Yes.

7906. Besides, I suppose, a certain portion of the apparatus might be left at the different schools?—Not with advantage. It is better to have your complete set with you and available.

7907. Now for the manual instruction. For the working in wood in the fifth and sixth standards, a more costly apparatus is required?—I don't know· Mr. Pearson will be able to give you information about that.

7908. But for the earlier practical exercises, in the standards below the fifth, I think we have these figures: for the first standard, I understand the cost would be £3 7*s*.; for the second, £3 12*s.*; for the third, £4; and for the fourth, 5 guineas?—Those are the figures for a class of 40 children.

7909. And then in subsequent years there would be an annual outlay of 10*s.* for the first standard; 12*s.* for the second standard; 12*s.* for the third standard; and 20*s.* for the fourth?—That is where you come to the cardboad work, and that means using up the material.

7910. So the cardboard work is rather more expensive? Yes.

7911. You have not told us of the expenses of the woodwork?—That I am not able to tell you first-hand.

7912. Mr. MOLLOY.—What science teaching prevailed ordinarily in schools prior to 1877?—There was nothing systematic. There were occasionally a few object lessons. There was no special provision of apparatus, the teachers utilised anything which happened to be in the school.

7913. If they wanted to teach chemistry, what plan did they adopt?—I do not think there was any case where that subject was taken.

7914. You mentioned that in introducing the hand and eye training in the case of the ordinary teachers you gave them special instruction. Do you mean they assembled in certain centres in large bodies?—Well, as a matter of fact, when this was introduced, it was introduced very gradually. I drew out the first year's course, and I went personally to each of the schools, and discussed it with the head teachers. We were really three years in introducing

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the four courses. But in other cases, where the subject has been introduced, numbers of teachers have assembled together in classes, and have had a course of five or six demonstrations, and worked the exercises under the supervision of some special teacher. That has been found to be attended with considerable advantage in getting the teachers more quickly into the spirit of the work.

7915. Assuming for a moment that it is possible to make manual instruction obligatory in training colleges, would you approve of that being done? We have five training colleges in Ireland. I will assume now, that it is quite possible to prevail upon the conductors of those colleges to introduce manual training. Would you approve of that either by itself or with the instruction of specially organizing teachers throughout the country?—I should hesitate to approve generally of such a condition. I think that if the training colleges could introduce means for experimental science work—a physical laboratory preferably—for their students, that it would meet all circumstances of the case. Where schools could be conveniently grouped there is a great advantage in having special teachers, because of the time required. But for isolated schools, teachers trained in training colleges, having passed through a physical laboratory, could very well give instruction in many cases

7916. Rev. Dr. Evans.—Reverting to the case of the square that you mentioned in answer to his Grace a little ago, would the pupils at that stage be able to understand it?—We find no difficulty with children of the first standard; they understand it, that is in a concrete instance. I should deprecate an attempt to get them, at any rate, first to give you a definition of parallel lines.

7917. But you used the words yourself?—I should not myself in the first instance, I should introduce it gradually, without calling special attention to it.

7918. Would you teach them what was a perpendicular?—Not in that stage, I should myself rather introduce the term "square," and call their attention to the sides of the square being in particular relation to each other.

7919. But there is where my difficulty comes in. I can hardly understand how a child is able to form a proper conception of a square without knowing that its sides are equal and parallel. It is not enough that they are equal; I want to know how you will get that thought into the child's mind?—I think if the child has a square of paper in his hands, folds it, and brings the sides together, and does that several times its conception of a square will become then sufficiently precise for you to build your verbal definition, and construct your statements.

7920. I want to see how the conversational object lessons help the position?—The conversational exercises help the position, because they lead the children to express their thoughts in language, and the children can talk about objects that are familiar and which they have with them more readily than they can give you an answer to an abstract question.

7921. You were a manual instructor first?—No, I had nothing to do with manual instruction in woodwork.

7922. How would you set forth the difference between manual instruction and technical instruction?—Personally, I should consider manual instruction as a part of technical instruction, technical instruction being the wider term. In our technical instruction work we regard the practical work which includes manual instruction of various kinds, as an essential part of all the sciences which admit of it. In our carpentry class and housepainting and decorating, and in the book-binding classes, we always consider that when it is possible there should be practical work; manual instruction, combined with theory.

7923. It would be very important if we had in some compact form very accurately and simply put, a distinction between manual instruction and technical instruction, so that the popular mind might get hold of it without commentaries or expositions. Have you among the students in the technical instruction classes many who were prepared in the primary schools?—Technical instruction has only now been definitely in operation for a few years, and at present we find that a considerable number of the students are of the older class, the journeymen and others, so that we do not at present see the full influence of the primary schools so much as I think we shall do when there is less of a break between the children leaving the primary schools and joining the technical instruction classes.

7924. So that at present there is not a large number of the primary school pupils who have been prepared in this manual instruction, passing on to the technical schools?—That is so. They are mostly in the evening continuation schools at present.

7925. Then there are a large number of students in the technical school who had not previously been in primary schools?—Not passed through the full course of manual instruction.

7926. Can you say to what callings or professions your students subsequently find their way?—Well, in Liverpool, of course, a large proportion of them enter offices.

7927. That is clerical work, book-keeping?—Yes, our industries in Liverpool are not of a very extensive nature to absorb the large numbers being trained now in our elementary schools.

7928. Do you think the technical instruction is a benefit to those people who pass on to clerical work, and not to any mechanical or professional work?—Decidedly, as a training.

7929. Do any considerable number of the students of the technical school find their way back to become teachers in primary schools?—I don't think I quite follow your use of the term technical school.

7930. I thought you had a special technical school of which you yourself were the head?—We have a number of classes but not an organised school, and that deals for the most part with artisan students.

7931. Well, from those technical classes have you any means of knowing whether the students that pass through them become afterwards primary school teachers who can teach this manual instruction?—No, the classes are taken part in by a number of primary school teachers who wish to obtain certificates in drawing or science, or in other branches, but those who have not been primary school teachers in the first instance are not made so by the technical classes.

7932. When managers of schools are wanting teachers would they give the preference to those who had been trained so as to give this manual instruction, and who are competent to give it?—I don't think that element enters into the minds of managers, unless they have a manual instruction room specially attached to their own school at present.

7933. If the manual instruction aid the school work, and we have been told it helps the teachers as well as the pupils, would not managers naturally look for teachers who were competent to give manual instruction?—I think they would be wise to do so.

7934. But you have no means of knowing whether that is made a consideration when they are looking for their teachers?—I have no knowledge. That it would be wise is very manifest.

7935. Captain Shaw.—From your position under the technical instruction committee, perhaps you could give us some information of the steps for the training of elementary teachers for general purposes of elementary schools—how far they do it?—The technical instruction committee have assisted with grants the central classes for the training of pupil teachers in science subjects and in drawing, and they have also assisted with grants the classes which were held at University College for the training of teachers in woodwork and in ironwork.

7936. Can you give us a little detail as to those classes at University College?—These classes were originally started by the Liverpool Council of Education a number of years ago in the Walker engineering laboratories at the college, under the general direction of the professor of engineering, and taught by one of his staff. For several years the students went through a course of lessons drawn up at the college, and were subjected to an examination by the professor at the end. But last year, for the first time, the students entered for the City and Guilds of London Institute examinations, and naturally followed the course required for that examination. They are doing the same again this year.

7938. Do you consider that an improvement on the old arrangement?—I think it is an improvement in one way; it is a very definite, systematic course of work, and it is a qualification which is generally recognised.

7939. Are there any classes for pupil teachers outside the central classes for pupil teachers in science?—No class specially for teachers. The teachers are present in considerable numbers in some of the other classes, but only as ordinary students.

7940. You do not pay their fees for them in other classes?—No.

7941. Or assist them in any way?—Except by the ordinary grants, just as if it was a class made up of non-teachers.

7942. As regards this definition of technical instruction, is not this instruction regarded as instruction with a specific object, by which a person could make his livelihood afterwards?—The term is a very elastic one, used very vaguely: but it is instruction connected with the life work of a person rather than for general education.

7943. Manual instruction as proposed for schools is rather part of the general education?—That is so, but you can carry your manual instruction to such a stage that it becomes in the strictest sense of the word technical instruction.

7944. But as carried out in the schools at the present time, you would not look upon it as strictly technical?—Not in the strict sense of the term technical instruction.

7945. In your system of science and object lessons, is there anything which stimulates a spirit of investigation in the children, or encourages them to make investigation on their own account?—Nothing further than the teacher is able to do by means of the demonstration leading the children on from point to point.

7946 Do you consider it is an important part of the education to stimulate the curiosity in that direction?—Certainly, and I think it is possible to do that by means of the science lessons that are given in the schools to a considerable extent.

7947. You have laid down a specific course for the teachers here, both in hand and eye training, and in object lessons, but I think you recommend that the teachers should have considerable latitude in altering them if they are capable of improvement?—The ideal state of things would be for every teacher to prepare his own teaching scheme, but it involves a considerable amount of time and thought to prepare a scheme, and although the teachers were by no means compelled in the first instance to adopt this particular scheme, as a matter of experience they have taken that rather than go to the trouble of preparing a scheme for themselves.

7948. Do you think it would be preferable if they would take the trouble under proper supervision?—I think that in all cases if you utilise a teacher's originality and interest you get better results than if you force a scheme upon him.

7949. Mr. REDINGTON.—You say that the main object of your manual training exercises is not the production of a series of finished models or objects of utility?—Yes.

7950. Would it increase the interest which the children would take in the work if a series of useful objects were made?—I think it is very dangerous to introduce too soon into the schools the idea of working for some useful purpose—of producing something which is going to be useful. I think it tends to obscure the primary object of the instruction—that is the training.

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7951. Would it not interest them if the model were finished by them entirely, and if they were not engaged on merely a portion of the object?—They do complete what they set out to do in the way of producing a pattern as a rule, or a geometrical design, but I am speaking of useful objects. The training given is a very useful one.

7952. Do you mean that you would not be content with their spending their time in making something which would be part of an object?—I would introduce, as soon as I could, finished objects that embody the principles of the exercises. I think, for example in the wood-working, that when the pupils had had two or three exercises in working a joint, if you could introduce an object which embodies that joint, you would secure a greater interest than if you postponed those objects to a later stage.

7953. But you make them work at joints before they come to make the objects composed of joints?—I think you get a disciplinary advantage, which is of extreme importance, by doing so.

7954. You said, I think, that you would like to have two lessons a week for the manual training exercises?—That was suggested, but, as Mr. Bott pointed out, the teachers find some difficulty in the time required for preparation, and in many cases they have, I believe, taken a double lesson at once rather than two lessons on separate occasions.

7955. When you speak of a lesson, what length of time do you refer to?—Thirty minutes, or preferably forty minutes.

7956. I don't quite understand how teachers were, in the first instance, made capable of giving lessons both in manual training and in elementary science?—In the case of the elementary science, we were dealing very largely with the pupil teachers who had passed through our central science classes, and who therefore were, to some extent, familiar with the method of experimentally illustrating lessons.

7957. Were there not many teachers who had not been through a course of elementary science?—As a rule, the teachers in these lower standards were the teachers who had been so trained, and we had been then training the pupil teachers for twelve or fourteen years. As regards the manual training, there was a little greater difficulty; but in the junior schools, where the exercises were first introduced, we had in many cases mistresses in charge who had had some previous training in the kindergarten work. As I explained before, the courses were introduced one at a time. I personally visited all the schools, and tried to explain the principles to the teachers as the exercises came on.

7958. Supposing that there was no organising inspector, such as you are, in what way could the teacher be made capable of giving lessons in manual training?—Two years ago there was a considerable impetus given to the introduction of this work into the schools. In a number of cases in this district groups of teachers voluntarily associated themselves together for the purpose of receiving some instruction in work of this kind. I myself visited several of those meetings, gave them a general lecture on the principles and aims of the course, and went through two or three exercises with them, just to show the way in which I thought myself they ought to be treated. They then met several times afterwards, under the charge of a teacher who had had experience in one of our Liverpool schools, and worked through the course of exercises. I have reason to think that that course was attended with very much advantage for the teachers.

7959. Have you any experience of the introduction of manual training into rural schools?—Some of

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these were rural teachers, and I must say that in those cases we had the greatest difficulty. The work was so new to the schools. The teachers had such a difficulty through having so many grades of children under their sole charge, that it certainly seemed to be attended with considerable difficulty.

7960. What size were those rural schools?—Sixty or eighty children, perhaps, and one teacher with a monitor in some cases.

7961. You think it would be a difficult thing to introduce manual training into such schools?—The teachers in those schools express themselves as having great difficulty in taking up any subject like this.

7962. As a matter of fact, has it been done in many schools in this neighbourhood?—I am afraid I cannot give you any particular information on that point. It was done then more or less under compulsion.

7963. Would there be the same difficulty in introducing elementary science lessons into small rural schools?—I should think there would be very little difficulty indeed in doing that, because the teachers have all been trained more or less to give object lessons of this kind, and this is only a sort of object lesson.

7964. And elementary science is so easy that it could be easily got up by any teacher?—By any teacher, yes.

7965. Chairman.—I wish to ask you for a few particulars as to the distinction between manual and technical instruction; I suppose the word "technical" may here be taken in a wider or in a narrower sense?—That is so.

7966. It may be taken in a wider sense, so as to include all work in which the hand is trained or the eye is trained?—Yes.

7967. Or in which any of the faculties are specially trained, at least any of the faculties that are of special use in trades and industrial occupations?—Yes.

7968. All that may be included in the term technical, all work of that kind, even in its most elementary and rudimentary form?—Yes.

7969. But the word is also taken in a narrower sense, and it is so taken when people distinguish between manual and technical training. For instance, when we speak of a technical school as distinct from an elementary school, the word technical is used there in a restricted sense?—But in many of these technical schools they have classes in woodwork of precisely the same kind as in the elementary schools, and they have also other classes.

7970. But in technical education, taken in that restricted sense, is not the work directed towards a special end?—That is so.

7971. It is work that prepares for a particular trade or for a particular industrial occupation?—Yes.

7972. And the work is done for the sake, as it were, of that particular occupation?—With persons who have that end in view.

7973. And not in reference to its general educational utility?—That is taking it in its strict sense.

7974. But when we speak of manual instruction as distinct from technical instruction, manual instruction is treated as a branch of general education? It is a training of the hand and eye, and of the faculties that are used in industrial occupations, but it is treated as a part of general education?—Quite so, in the schools.

7975. Not for its special utility as preparing either for trades in general or for any trade in particular?—So far as it is taught in the elementary schools I should regard it as merely being part of the general education.

7976. And when the children are put to work in wood, it is not with a view to preparing them to be carpenters?—Not at all.

7977. It is the sort of training that will be of use to them even if they are afterwards put to work in metal?—Yes.

7978. Or if they become clerks?—Yes.

7979. Or members of learned professions?—The general education of the student is of use to them in their after career.

7979a. Is this the distinction that you would draw between manual instruction in the elementary school on the one hand and the technical work of the technical school on the other hand, that in the elementary school you do not specialise?—In the elementary school, all are treated alike. We give training which will be of use in after life no matter what the particular career may be.

7980. But when we pass on to the technical school, you specialise, you have in view trades or industrial occupation, and, to a large extent, particular trades and particular industrial occupations?—We are dealing then with persons who have more or less selected their particular professions.

7981. And when you teach them to work in wood, it is not for this general educational advantage, but because they are to work in wood as a special occupation?—That is so.

7982.—You are satisfied with that explanation of the distinction between the manual and technical education?—I think that expresses the object.

7983. But, of course, the expression "technical education" may also be taken, and taken with propriety, in the wider sense, so as to include all this manual work?—In the working out of the Technical Instruction Acts, it has been found that in many cases the students who go to the special technical classes are not prepared to take their special work for want of some general training of this kind, and there has been a tendency to extend the use of the term technical instruction to cover a certain amount of this preparatory work which should properly have been done in the elementary schools.

7984. In such a case the technical school is driven, as it were, to do work that more properly belongs to the elementary schools?—That is so.

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SEVENTEENTH PUBLIC SITTING.—THURSDAY, APRIL 1st, 1897,

AT 11 O'CLOCK, A.M.,

Liverpool.
April 1, 1897.

At the School Board Offices, Liverpool.

Present:—The Right Hon. the EARL of BELMORE, G.C.M.G., in the Chair; His Grace the Most Rev. WILLIAM J. WALSH, D.D; The Right Hon. C. T. REDINGTON, M.A.; The Right Rev. Monsignor MOLLOY, D.D., D.Sc.; Rev. HENRY EVANS, D.D.; Rev. HAMILTON WILSON, D.D.; Professor G. F. FITZGERALD, F.T.C.D.; Captain T. B. SHAW, and J. STRUTHERS, Esq, B.A.;

with J. D. DALY, Esq., M.A., Secretary.

Mr. J. C. PEARSON, Director of Manual Instruction to the Liverpool School Board, examined.

Mr. J. C. Pearson.

7987. CHAIRMAN.—Will you tell us upon what basis the boys are selected in Liverpool for manual instruction in the Board's schools?—In the Board's schools we take every boy from standard 5 and upwards, and the subject is brought in quite as a matter of course; there is no principle of selection whatever. We might have a boy who had, say, heart disease, and had a doctor's certificate; he might be excused from such a thing as planing, but otherwise the boys have to take the subjects just as they take any other subject on the time table.

7988. With regard to the arrangement of the buildings, will you describe that, please?—We have the "centre" system as against an individual room attached to each school. The whole town is mapped out into districts, having regard to the position of the schools; then we take three or four schools that are in conjunction and as near as we can find, and on a central site place one of our buildings, and the boys travel from the school to the centre. By that means we are able to do the work as regards first cost very much more economically, without losing anything in the work appreciably, than if we attached a room to each school; because, if we attached a room to each school, we should need to have the plant duplicated instead of having one set at each centre.

7989. How many schools are attached to each centre for the purpose of manual instruction?—About four or five Board schools.

7990. Now, will you tell us what are the subjects of manual instruction in standards 5, 6, 7, and ex-7?—In 5, 6, and 7 we have woodwork, with the necessary drawing attached, and the boys get one and a-half hours a week of actual practical work in the centre; there is an average of about half an hour of drawing, which is taken in their own school. In ex-7 the boys get a whole day at the centre, divided as follows:—One and a-half hours for machine drawing, one and a-half hours for clay modelling, which covers a morning, and the afternoon is for practical metal working. In the case of the metal work drawing, that is done in connection with the machine drawing, and taken by the teacher at the centre, as distinct from the woodwork drawing, which is taken at the schools in the preceding standards.

7991. I think you could give us some general description as regards the system of the manual instruction course?—First of all, I should say that we base our exercises principally upon the English system of woodworking. I am a Sloyder myself, but I do not believe in taking the pure Sloyd, and for the following reasons, among others—the theory about Sloyd is very perfect, but unfortunately the actual practice does not work out anything like as well as the theory. For one thing, they say that each exercise in Sloyd must be within a very close thing to absolute perfection, or it cannot be passed; then they have to do either one of two things—keep their children practically for ever at one thing to get this near perfection, or they have to lower their standard. If they did the first, it would get thoroughly wearisome for the children, and if they do the second they violate one of their own principles. When I was a student at the Sloyd class I found that the lady students there, who were the only ones who did not know anything of woodwork before, would work for 90 hours and get through about a dozen of the examples, and would not really know anything of the argument for each exercise. They just get a result by whatever method seems to suit the moment, instead of having regard to what may follow. When I was doing exercise 1, which is whittling away a little bit of wood, as I said before, I had been through the City Guilds' work, and thought I knew something of woodworking, and had some amount of skill as a craftsman, but I think it took me five and a-half hours to do that example before Miss André would pass it. I think if it took me that time with a man's strength, and skill, and earnestness, it will take the boys many hours to get the same thing done to the same degree of perfection, and they will be just prepared to throw it out of the window in sheer disgust. Then I saw Sloyd in a school at Brussels, when I was taking a tour on the continent, and looking at this kind of work.

7992. What was the first school you were at?—In Liverpool, under a Swedish teacher. I have not been in Sweden.

7993. Most Rev. Dr. WALSH.—But the lady who taught you was a Swede, and she taught on the lines of the Swedish system?—Yes. Then I saw the work of the senior scholars in Brussels, and the feature I was most struck with was the roughness of the work. Then, again, three years ago, at Sheffield, at the Manual Training and Sloyd Company's Schools, where they take Sloyd, pure and simple: they had selected boys from the surrounding schools, big, strong, intelligent boys, and I was there much struck with the roughness, and it showed me that Sloyd does not work out as it is supposed to work out when put before you theoretically. The next thing I had to consider was the question of interest. It is necessary we should have the boys interested in what they are doing, but I do not think the best way to get interest is to rely entirely on novelty, because, logically, when the boys get sufficiently used to a thing for the novelty to have gone, the interest will have gone too. I believe in that interest which comes from so thoroughly well training boys in their work that they feel they are getting a continually increasing mastery over their work. I have a very much greater belief in the interest of mastery than in the interest of novelty. I also had to remember that we were not here having selected boys; we were having the boys sent to us by hundreds and thousands, just as for arithmetic, and so it was necessary to take the work some what on the same lines. I therefore worked very much as I should for arithmetic, remembering that there are certain elementary operations that would occur again and again, just as the four first rules in arithmetic are continually recurring,

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and, that until those are known thoroughly well, the boys will always be subject to check; so I made exercises dependent upon the operations I wanted to teach, took a step at a time with natural and easy graduation, and as a consequence of that, when we get our boys through a year or eighteen months, we have them just as much interested as we could possibly wish.

7994. CHAIRMAN. — You said that you do not approve of pure Sloyd. Would you indicate very briefly the modifications of pure Sloyd that you do not approve of?—It is rather difficult to answer your question in a few words, but I think I can give you the exact answer you want by going through these three years' course, as published by the Board and used in the school. (*Copies of the Board's Syllabus were before the Commission.*) It is called "Manual Instruction Woodworking Course, adopted by the Liverpool School Board, for Standards 5, 6, and 7," these being the standards in which manual instruction is given. Whatever the boys do afterwards, they will have to be able to plane and produce a true surface, and understand a right line, and they will have to be able to set out; and to saw and chisel; and if they cannot do these things thoroughly well, they will be checked again and again, and will not do any completed work afterwards with a good chance of success. And I remembered, too, that these are very average boys. We have them in considerable numbers, maximum classes of 36 boys, and I make a great principle of having the work step by step. So the very first thing, which is trueing up a piece of wood on four sides, which I might give to a clever or old scholar, quite as one thing, I split up into four here. I give them a piece of wood, and make them produce a plane surface first; and here I may say that I go in for recapitulation to ensure efficiency, recapitulation in a variety of ways to avoid monotony, and, then, in each new exercise, I have just a little new work. Exercise 1 is to produce a plane surface, exercise 2, to true up two adjacent sides; there is a recapitulation of exercise 1, the new thing is to get them related to one another, in that they are at right angles to one another. To true up a piece of wood on two sides it is necessary for the boys to gauge. I do not want the boys to spoil their exercise by not being able to gauge a good line, so I forestall that by giving them a gauging exercise for an exercise 3. Exercise 4 is simply an aggregation of the previous three exercises. Exercise 5 is first, the trueing up of a piece of wood on all four sides—that is recapitulation; the longitudinal lines are recapitulation of the lines in exercise 3, but the transverse lines are new work, and the sawing is new work. They get practice then at sawing only, they can give their whole attention to sawing and be impressed with the necessity of doing it very carefully. Exercise 6 I look upon as a very important exercise indeed. In everything they do the setting out is the most important thing. Whether merely setting out a very simple little exercise in woodworking or building a place like, say, these offices the most important of all is the setting out, and I know if I can get the boys to set out precisely in the early stages I shall have a great advantage later on. In exercise 7, I give them a little more longitudinal sawing because I find that is more difficult than transverse, because of the drag of the grain. In exercise 8, I come to the first practice with the chisel; the simple trueing up a piece of wood to get it rectangular, setting out the distances and sawing down the sides of the trenches is all recapitulation; but the use of the chisel is the new work; they are guided by the little walls at the sides, but they have to be careful to get the bottoms of each of those trenches smooth. They cannot do it the first time usually. If I gave them exactly the same exercise again they would not like it, so in exercise 9 I give them a similar sort of exercise but on the skew; it gives additional practice at oblique sawing and although 9 is a much more difficult exercise than 8 they usually get the bottom of the trenches very much smoother than they did in 8. In exercise 10 we have the production of an octagonal prism; it is simply trueing up a piece of wood on all four sides and taking off the corners. I lay stress on it because it gives training in discrimination. For instance, when we first have the boys in a centre and want to tell them to be extremely careful in taking care of their tools, if we were to ask them which was the most delicate instrument they would probably show you a marking awl point, and when we tell them the plane is the most delicate instrument, although they do not say they do not believe you, you can see they do not. But when they have got to exercise 10, where one stroke more or less makes the difference between a regular and an irregular octagon, they then appreciate that the plane is a very delicate tool indeed. Exercise 11 is a further development of the kind of thing in 10, they keep on planing off the successive corners until they get the wood to a cylindrical shape, then finish it up with a file and glass paper. Exercise 12 is the same style of work except that the shape is conical.

7995. Is that done with the plane?—It is done with the plane down to the smoothing off with the file and glass paper. I should say that in all the exercises but one previously except exercise 6, the piece of wood they have had to plane has been narrower than the plane itself, but in exercise 6 we give the first piece of wood that in one way is wider than the plane and in the other way is very much narrower. In the five exercises, 13 to 16, I give them a broad piece of wood, large enough to take the whole of the four exercises as shown by the plan and elevations. They first plane up the whole board, then from a base line parallel to one edge, they set out the various geometrical figures; a point comes in there again that I referred to before in connection with exercise 6. They have done these figures in their drawing books with a certain set of instruments, they have to do the same figures on wood with a different set of instruments and yet they get the same results; it shows then that under different conditions they may have to take different methods to secure the same result. When they have set them all out they saw them out approximately about an eighth of an inch wide of the boundary lines of the figures, and then they have to plane off the edges with a smoothing plane. One way of doing it would be to have a shooting-board arrangement whereby they could pretty well get these edges correct automatically, but I prefer they should use the smoothing plane; it is more difficult, they do not get quite so good a result but they have very much more training in doing the thing. Exercises 17 to 21 are similar style of work. That forms the fifth standard course. Every boy has to do each one in proper order before being allowed to go forward to the next. In standard 6, in exercise 21 the second use of the chisel comes in, where the chisel has to be used very much more independently than in 8 and 9 and where the boys are dependent more upon their fingers, upon the delicate use of their finger tips to get a good result. Exercises 23, 24, and 25 are progressive forms of the half lap joint and you notice that 23 is simply two pieces of wood put together after making two saw-cuts on each. A long way back we had that simple sawing and persons might be inclined to say "Why did you not have exercise 23 much sooner?" But although they could saw fairly well then, here they have the additional difficulty of having the two pieces to fit together and the fitting of them is the difficult point. In 24 there is one open and one closed piece, and in 25 both pieces are closed, but we have had the factors of those exercises before and have provided for them and that is a principle we carry all through. I know if the boys are to do any completed work later on, one of the most important and one of the very frequent joints is the one shown in 28, and I know, too, that in respect to 28, two independent pieces of wood, one with a hole in it and the other with a tongue, mortice and tenon, set out independently, if they get them to fit perfectly it is a great advantage and gives them an impulse towards good work; but the chances are, they will spoil it. I spoilt my first myself, so I make provision for that in exercise 26. I give them the mortice as a solitary exercise, they have a chance of spoiling it there, they also have a chance of learning the best way of doing it. They have got three practices at the same thing, and by the time they do the last one they can make a very good mortice as a rule. In the exercises next, we have a combination of practices that we have had before as separate exercises—28, 29, and 30. When they have done 26 and 27, I know they are fit to go forward to the following three with a fair chance of success. Thirty-two is a gouging exercise, elementary form of carving really, but it is a very good thing for making them to finish up the bottom of their grooves with precision. There are four grooves and we usually find there is a considerable difference between the finish of the last one and of the first. Thirty-three is a simple preliminary form of dovetailing. Thirty-four and thirty-five are two pieces of framing which is a gathering up of some of the practices they have had before. That is the whole of the compulsory work which everybody has to do in standard 6. In standard 5 the work was all compulsory. In standard 6, the major portion is compulsory, and then we have optional work. You will see objects 1 to 14, simply complete things dependent upon the exercises they have learned before, and the boys then can do as many of those as time will allow in each individual case to the end of the year. We generally get 3 or 4, or perhaps half-a-dozen done by the best boys. There are different degrees of difficulty, and we select them according to the varying capacity of the boys. Then, if you will take standard 7 course, we have only two compulsory exercises, that is, only two exercises that every boy must do, all the rest are optional. The following five exercises up to 42, whilst they are forms of joints, they are extremely difficult, and we treat them for class purposes as complete objects. The objects 15 to 28 are a set of geometrical solids; you saw some the other day, and with what precision the boys had done some of these pyramids, which is rather a proof of the value of the disciplinary training they have had before in attending to the details of the work. From 29 to 43 we have mechanical and scientific apparatus, some of which is of a similar character to that which they use in their science work; test tube stands, the compound lever and so on. Exercises 44 to 47 are admittedly Sloyd models. I have taken them because they give excellent practice in curves. Of course the pen-tray is no more Swedish than it is English, but it is adopted in the Swedish system, and I find the boys at that stage have a chance of making a good job of it. Then there are varied objects, 49 to the end, simply suitable combinations of the previous practices they have had. That is the woodworking, and they only get as a maximum in their three years 198 hours. We have 44 school weeks in the year, 1½ hours a week for three years. It only works out to about a month's work in the workshop for an apprentice, as a matter of hours.

7996. How many hours a week does an apprentice work?—About 50 hours, and I do not think the apprentice could be found who had never used tools before, and went into a workshop for a month, who could do work like some of these boys do. The reason is, that these boys get such close drilling, and are under such good discipline in the schools. In ex-7, and ex-ex-7, if they stay on later, they have their metal working. When the boys go to metal working, although they have very much more stubborn material to deal with, they are very much more equal to producing good work. The reason is, that they are not novices from a craftsman point of view, but I have to give them some time, probably the major portion of the first year, in common practices, that makes them acquainted with the tools and other apparatus; so they have varieties of simple turning, filing, drilling, tapping, and simple forging, and after that we give them complete objects to do, but I leave that very much to the discretion of the teacher. In the machine drawing we have no working from flat drawings. If you put a flat drawing in front of a boy, he may make a very excellent drawing from it, just like it, but he may understand nothing whatever about it, and what we want to do in machine drawing is not merely to make clever draftsmen, but we want them to understand what they are doing, and realise what the flat drawing represents in the concrete, and so we have models that they can handle and take to pieces. They have sketch blocks and make hand sketches of the model, with suitable elevations and sections, and take their own measurements with callipers and rule, and state their measurements on their own sketch. They then take their own sketch and go and do their finished drawings from it, and as they go on, we let them put those drawings in relief with a little shading, and then allow them do colouring. I showed you on Tuesday some very excellent drawings by these boys who only a couple of years before could hardly be trusted to draw a square or a triangle. In the clay modelling we have not arranged it according to any graduated system, and I do not see myself why we should tie that down, we know pretty much what the ability of the boys is, and can give them suitable models to work from. But we find it of enormous advantage to do the casting, because a boy may be working away at a certain model and cannot understand why the teacher gives him so long at one thing, but when the model is cast, he is impressed with the fact that what is produced is simply what he did. And, as a rule, the boys make a tremendous effort afterwards to get a thoroughly good original, so that the reproduction may be good. I value the clay modelling very much, because it is what may be called concrete freehand drawing, and the boys have to be entirely independent of measurement, and they have such good training by balancing the thing with their eye, and it gives a certain amount of deftness.

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7997. Now, will you give us some information with regard to the capital expenditure, as regards buildings and benches and tools and so on?—Our first building, the one at Orwell-road, had a plain corrugated roof not lined; it was 50 feet long by 20 feet broad with lavatory accommodation, and cost £150. The one you saw at Brae-street worked out to 5s. the square foot. That has a pitched roof, and skylights as well as side lights; it is lined with board lining, and between the boards and the sheeting there is patent inodorous felt. It is heated with hot water. We have good light and a good floor and the whole thing only worked out to 5s. the square foot. For iron buildings you can get quite as good as ever you will want at about this cost.

7998. Most Rev. Dr. WALSH.—I understand that the total cost was £1,000?—Yes, and the building is 100 feet by 40 feet, divided into five rooms; then in the benches and tools, £2 per bench place is about the cost.

7999. Professor FITZGERALD.—For ten boys?—Per boy.

8000. £2 per ten boys per week?—We have twenty boys per week, following one another at the same bench place.

8001. CHAIRMAN.—Assuming you were going to put up a smaller building, say it was 25 feet long by 15 feet wide and you had three benches at which you could have twelve places, what cost do you think could that be done for, first as regards the building, and secondly the equipment?—A building of the same quality as the Brae-street building, including night lighting and heating, would cost £90.

8002. Most Rev. Dr. WALSH.—For how many boys?—That is for twelve at a time; there would be about £30 for benches and fittings.

8003. CHAIRMAN.—Then may I take it that you think you could put up and equip a building of that

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size for £120?—Yes, I think so, and I have included in that some small amount for cupboards.

8004. And that includes lighting and heating?—Yes, it includes everything.

8005. Now, will you give us some information with regard to such things as salaries to teachers and materials in the way of timber, and allowances for depreciation?—In Liverpool, as you know, we have special teachers. The Board pays the first year £90, rising £5 a year for six years, together with £3 for the Science certificate, £3 for the D. certificate, and £5 if they have any university distinction from matriculation upwards, plus one-eighth of the Government grant; but I perhaps might suggest here that another way of doing it would be that if you had places attached to schools then just a small additional payment to one of the ordinary teachers of the school would secure a manual instruction teacher. I believe they are just going to do that at the Bluecoat School, Liverpool. We have timber supplied cut up for all these compulsory exercises, and boards and several different kinds of fancy woods for the completed work. We reckon the cost of timber to be 1*s.* 2*d.* per head per annum.

8006. Professor FITZGERALD.—That is per boy that uses it?—Yes, per boy who may be in attendance the whole year. I base it on the amount of timber required to go through the compulsory work.

8007. CHAIRMAN.—Pitch pine, I believe, is the timber used?—Yellow pine, and it is the cheapest to have the very best; there is no good in giving a boy a piece of timber that has knots or is twisted in the grain; it is the cheapest to have the very best timber and to have no waste.

8008. Then maintenance?—We have an item for maintenance in this way, that for keeping tools in order we have one man to each four centres who is paid 35*s.* or 37*s.* 6*d.* per week, so there is a matter of about £18 or £20 a year at each of our centres for 720 boys for maintenance. And I think the accountant reckons usually 10 per cent. for depreciation, but I think 10 per cent. is too much.

8009. In using the word depreciation you are referring only to tools and not to buildings?—I am referring to depreciation of the whole thing. We expect our buildings to last thirty years, our benches have been going seven years, and we have not lost seven-tenths of them yet, and similarly with our tools.

8010. When the benches get old will they not wear out much faster than when they are new?—They will only wear away the bench top, and we can have that renewed.

8011. What do you say on the question of trained teachers as against skilled artizans?—I am entirely in favour of trained teachers, because what we do is not to produce the article but to develop the boy, and so we want persons who are really practical at the art of training boys. You may get a skilled artizan. We have one exceedingly striking case who is a very successful teacher; he is successful in spite of being a skilled artizan and not because of it. As a rule the skilled artizan thinks a great deal too much of the articles that are being made, and too little of the effect on the boy during the process of making them. I am entirely in favour of trained teachers and trained teachers only.

8012. What kind of training do you recommend for the trained teachers?—He should be a first-class teacher in the special sense to start with, and then if he gets the City and Guilds' first year or final certificate you have a guarantee that he knows woodwork, and if he has had a training in Sloyd as an adjunct to that so much the better; but it is comparatively a small matter for him to get sufficient skilfulness in woodworking if he is already a trained teacher.

8013. Most Rev. Dr. WALSH.—Does the certificate of the City and Guilds' Institute certify to his power of teaching drawing?—No, it is merely to his knowledge of the use of drawing.

8014. I think I heard you say the other day when we were at Brae-street school, that there was a general impression in this country that Sloyd meant working with the knife, and that this is not correct?—It is not correct; they use a number of tools similar to our English tools; they may be in Swedish form; they simply use the knife for places where no other tool but the knife could well get in. I want to be perfectly fair to the Sloyder, but Sloyd has been prostituted somewhat here by persons setting up what they call manual instruction classes, where they used very little but the knife, they called it Sloyd, and tried to get a grant from the Science and Art Department for it. Sloyd is not merely the use of the knife, it is the use of Swedish tools used in the Swedish manner; and they make their great thing this, that you must have useful and completed articles to gain the interest of the children, which I do not believe in at all.

8015. You have been speaking only of Swedish Sloyd when you use the general word "Sloyd"?—Yes.

8016. Suppose we take the word in a more general sense, as meaning a system of working in wood, carried out with a view rather to the pupil than to the object made by the pupil, thoroughly educational in its scope, having the education of the pupil in view rather than his mere instruction, and carefully graduated from the start to the finish. Do you think Sloyd understood in that sense is a useful branch of school work?—Yes, Sloyd in that sense is what I have been talking about the whole time when dealing with our Liverpool system.

8017. We have to deal, unfortunately, with an absolutely uneducated people, uneducated in this particular matter, and it is necessary to be very careful about the use of terms. In what you have been saying about Sloyd, you refer, not to the Sloyd system as I have now described it, but to the special manner in which the system is carried out in Sweden?—Yes.

8018. Your system of school woodwork may be called English Sloyd?—Quite so.

8019. Your experience of Sloyd was gained, not in Sweden, but at a school in England?—From a Swedish teacher, and one of the principal teachers at Naas.

8020. And is it the experience so gained that has led you to the conclusion that the system as carried out in Sweden would not really interest the boys, and that it would end by their wishing to throw the piece of wood out of the window?—I have not quite said that, I think; but there is not anything like the amount of interest to the boys in it that is claimed for it theoretically.

8021. But one of the principles of the Swedish Sloyd system is that the work should be so arranged as to interest the boys?—Yes, I believe they aim at that.

8022. Then it comes merely to this, that you consider that in your modification of the Swedish system you carry out the Swedish principle better than the Swedes themselves?—I do.

8023. You don't dissent in any way from their principles?—Not at all; I think their principles as stated theoretically are the most perfect in the world.

8024. So it is merely a question of the best methods of carrying them out. Now, in reference to the use of tools, in the Swedish system they begin with the knife?—Yes, the whittling of a stick.

8025. But we have been told that that is the ordinary knife of the country, and an instrument that is used very much in the industrial work of the country?—I think it is.

8026. So in this again there is no difference of principle between you and the Swedish Sloyders: they use the tools that their people are familiar with, and you use the tools that are similarly in use here in England?—That is so.

8027. So we may take it absolutely that you approve of the principles of the Swedish system, and that your object is to endeavour to give effect to those principles more thoroughly than effect has been given to them in Sweden?—Yes; I think that is a fair statement of it.

8028. There is one important point of difference between the Swedish Sloyd and the Sloyd as you carry it out: you attach great importance to preliminary exercises, exercises devised chiefly to make the pupils handy in the use of tools?—I attach great importance to those elements that are always recurring, and that is the main point where I differ in practice from the Swedish system.

8029. I suppose it is something like what we meet with in the learning of a musical instrument: a person learning the piano has to practice a number of scales and exercises which recur, not perhaps in the same form, but to some extent, in almost everything they have to play?—Yes, and there is this advantage that in the practising of those scales you can pay attention to the manner in which they are done rather than to the final effect. And I should like to say here that I maintain that to secure an interest in the details for the details' sake, is a very much higher form of interest than just the interest in the finished thing.

8030. You aim at giving them a sort of facility, an almost mechanical facility, in performing the necessary exercises, so that if they have to use a saw they will come to use it in a particular way, more as a matter of instinct than anything else?—I should like to get the facility as perfect as that, but not that they shall work unthinkingly; I want to give just the exact impression to you, because in a lot of these things the same words may be used to mean different things.

8031. Mechanical facility in this sense—just as with the multiplication table you want the boy to know it so well that if you say suddenly, "Nine sixes," he says "54" without going through any counting, he has the facility from knowing the table so well, not because he is indifferent to it. When I say mechanical, I don't mean mechanical because divorced from mental appreciation, but that he has such a command of the merely mechanical work that he can pay more attention to the finish than if he had to be constantly looking at the details. It seems very much the same as the illustration I gave you of playing with an instrument. If a person plays without conscious effort he can then attain to expression and finish?—Yes.

8032. So you wish the pupils to have a similar command of the tools they use?—Yes.

8033. In speaking of manual instruction as you have to do with it officially, I suppose you speak exclusively of working in wood and metal, not of those preliminary stages that have come to be spoken of as hand and eye training?—I have some considerable knowledge of them, but they come under the science demonstrators here more particularly.

8034. I suppose you consider them useful exercises as leading up to the manual work of the higher standards?—I would like to see something more definite in standard 4. I think something could be done that would be of much more advantage to the boys in standard 4.

8035. Take these exercises in the lower standards—1, 2, and 3?—I think it is excellent.

8036. Then, again, it is merely a matter of detail: you think standard 4 ought to form more of a bridge between standard 3 and the woodwork in standard 5?—Yes.

8037. But in principle you regard all these as useful exercises?—Yes.

8038. I suppose you consider that woodwork such as you describe could hardly be carried out in a school where there is only one teacher, carried out by the teacher of that school?—Oh, yes, it could; it is only a question of guaranteeing that the teacher has the special knowledge, and that there is time for it, and conveniences: there is nothing in the world to prevent it.

8039. Professor FITZGERALD.—Is it possible to find the time?—I don't know what your subjects are, and how much your teachers can stand.

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8040. Most Rev. Dr. WALSH.—You may take it that we have less time than you have in England: could it be done if we had the English school hours?—Oh, yes, it is purely a matter of arrangement.

8041. Captain SHAW.—Do you think the children would stay after time to do it?—They would, but I think it would be very much better to have it as we have it as part of the compulsory curriculum, because you have to consider boy-nature. A great many boys think they like things tremendously, and if these things would do themselves and produce results without any continued effort on their part, they would keep to them; but the grind necessary to secure a good result in anything is distasteful to a great many boys. It is very much better to have it compulsory.

8042. Most Rev. Dr. WALSH.—Special provision is made for the training of school teachers in this branch of their work in Liverpool?—We have classes at the University College.

8043. And those classes work satisfactorily, I suppose?—Oh, yes.

8044. The exercises are not exactly the same as yours, but they go substantially on the same lines?—It is based on English woodwork, but they go much further. I have heard headmasters say they wished they were allowed at the beginning to do the same step by step process as we do, because of its graduation and thoroughness.

8045. What are the ages of the boys in the three standards, 5, 6, and 7; may we take the ages, respectively, as 11, 12, and 13?—We get down as low as 10.

8046. At what stage do you begin the metal work?—Ex.-7th standard.

8047. Not at all in standard 7?—We do promote at half the year or three quarters of the year very forward boys.

8048. At what stage do you begin clay modelling?—The same stage, and machine drawing, the three begin together in ex.-7.

8049. Have you given any attention to the question of introducing such occupations as weaving, in an elementary school: would you consider it in place or out of place?—It seems to me as if it was rather technical, that you would do weaving for the sake of the weaving and the industry, and having regard to the children going to that industry later on, rather than for any distinctly educational benefit, which it might be calculated the child would get from doing weaving at school.

8050. Your idea would be that any manual work that is done in school should be for the sake of the child, not for the sake of the object produced, and that as regards the child, the aim should be general, that is, without special reference to any particular trade?—Yes, and that is the distinction I draw between manual and technical instruction.

8051. Captain SHAW.—How far do all the children work side by side at the same exercises during the course?—Theoretically we arrange for them to work together, but as a matter of practice they do not, because there are differences of attendance, differences of ability, and differences of correctness, and so on. But as I said just now, we have the year's work arranged, and if boys get done before the end of the year, they have supplementary exercises based on these things. Of course the variations with boys who are in regular attendance are comparatively slight, but at the same time they cannot work absolutely in line, and it is not a good thing to have it either unless you could guarantee that every boy was exactly of the same strength and ability; it would be like setting to a class of children a sum which involved four or five different kinds of operations, and at a certain moment saying, "Stop that operation and go on to the next," when the second might depend on the first, which had been left unfinished.

8052. There is a sort of impression gone abroad that in Liverpool they are all compelled to do the same thing at the same time: you don't repress the

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boys' individuality?—No. We say it is a good thing for one boy, and it is a good thing for all the boys, to go through the same course, but we don't keep them in line for the sake of keeping them in line.

8053. Professor FITZGERALD.—Why did you say in theory they did, instead of saying that such a theory was a bad theory? You began by saying that in theory the children all went at the same rate, but, in practice, you were not able to get that theory carried out. Why did you make a bad theory?—Did I say in theory they went at the same rate? I meant that in theory we arranged the same course of work for a given time for them, and it would be a good thing if they kept together, it would ease the teacher; but, as a matter of fact, there were these difficulties. I may have made the slip you referred to.

8054. Captain SHAW.—Do you think they can get sufficient accuracy with yellow pine?—You can get absolute accuracy.

8055. There is no necessity of having fancy wood for ordinary work?—No, I think it would be worse.

8056. Is the discipline more severe with pine than with bass wood for making a smooth surface?—You take two woods that are practically the same. Suppose you take mahogany; in the matter of horse power it would be greater, but I do not know that it would make any difference in discipline.

8057. As to the drawing for the manual instruction, I believe that is done in the boys' own school?—Yes, and under the ordinary teachers.

8058. Does that work satisfactorily?—I think it works very well indeed.

8059. Do you think it is preferable to its being done under the manual instructor?—No, I don't think so; I think the very best thing would be if we did the drawing ourselves as well as the woodwork, but we have to consider what is practicable; to do the drawing at the centres, we should have to double our staff and buildings, and it is not worth it. We can get it so nearly well done at the schools, that we consider, all things taken into account, it is much better to do the drawing at the schools.

8060 Professor FITZGERALD.—Now will you describe the way in which they arrange that the drawings in the school shall go hand in hand with the work in the workshop notwithstanding that the work in the workshop does not go at the same rate with all the boys?—We have special drawing books in which manual instruction drawing only is done; the schools are supplied with illustrated syllabuses, and they have to take care to keep the drawing in front of the woodwork. The teacher at the centre initials the drawing in the boys' book, when the corresponding exercise in woodwork is finished, and so the teacher at the centre sees whether the drawing is sufficiently in advance. We like them to keep one or two exercises in advance. If there are boys who are very slow with their woodwork, of course they get considerably more drawing done than they actually need or can follow in the woodwork, and if boys are absent from school, and don't get the drawing done, the teacher must find means for getting this drawing done in other ways. He must treat these exceptional cases as he would treat exceptional cases in other subjects.

6061. You don't find any difficulty in that?—It works exceedingly well.

8062. Captain SHAW.—In your course of woodwork, you treat very little of curved surfaces until the 7th standard?—We have one at end of the 5th, the disc.

8063. But it is a flat surface with a curved edge only?—You will admit it is a curved surface.

8084. Is it not rather a strong feature of the Sloyd system, they attribute some special virtue to the study of curved surfaces?—I think they do, but we don't make a strong point of curved surfaces at first, the reason is I attach so much more value to a foundation of things that can be exactly assessed.

8065. You are supplementing your instruction by modelling in clay; don't you think that is a better substance in which to study curved surfaces for boys than wood?—Oh, much, because if they get the thing too small they can add to it, but in wood they cannot. They have so much more opportunity for correction in clay; but in wood there is the advantage to be derived from having a somewhat stubborn material, and you have to take extra care when you know if you take too much you cannot put a little on again.

8066. Is not the practical result with boys that they generally do take off too much, and miss the form altogether?—Something depends on the careful supervision of the teacher, but I daresay you are right to a large degree. Boys do know how to do things wrong.

8067. As regards the size of the tools and benches, are they full-sized carpenter's tools and benches that you use?—In benches it is simply a matter of height—we make the benches to suit the height of the boys, and in regard to the tools, I make a special point of making the tools to fit the boys' hands, and the thing that suggested that idea to me first, was a boy's cricket bat. If you want a boy to play cricket correctly, you have to give him a bat of proportionate size, and I thought why not do this with tools, and we had a set made proportionately smaller, and found it did very well. In chisels, we cannot alter the width, but we had the blades shortened, and what we may lose in the wear and tear, we gain in facility, and we had the handles made proportionately short, not merely men's handles stumped down, but we have them made in proper dimensions.

8068 Most Rev Dr. WALSH.—But in the course of the two years that the boys are at this work they grow, and the tools do not?—Yes, but it is very much less of a disadvantage that the bigger boys should have tools that, if anything, are too small, than that the smaller boys should have tools that are too large. We cannot provide for every contingency; we have to strike an average.

8069. Captain SHAW.—Then you give very little mechanical aid throughout to the work?—We reduce it as much as ever we possibly can.

8070. And you think you get more effective manual instruction in hand and eye training by not allowing mechanical aid?—Yes; we may not get as good an apparent result, but the amount of training represented by the exercise is much greater the more independently it is done.

8071. Rev. Dr. EVANS.—You are Director of Manual Instruction under the Liverpool School Board?—Yes.

8072. Do you know other gentlemen holding similar positions elsewhere?—I know several. I used to know Barter, of London. I have met Nelson, of Manchester; Young, of Leeds; Bearder, of Leeds; Graham, of Edinburgh; and Hudson, of Hornsey.

8073. These are practical men?—Some of them are.

8074. Do you happen to know where they got the preparation for their work?—I think Mr. Nelson got his preparation in Sweden. Mr. Barter was a skilled artizan, but much out of the ordinary, who had done a good deal of work in science and art teaching, Mr. Bearder got his training at Sweden and Leipzig; Young got his in Scotland; Graham was a skilled artizan, and has been to Naas, I believe.

8075. Had any of these gentlemen the advantage of a course of training in a training college?—I know several of them could not, and one or two others I cannot speak of with certainty; for instance, I don't remember whether Bearder did, although he was a teacher. It is as likely as not that half of them were in training colleges.

8076. You yourself were?—I was in Westminster.

8077. From your experience of how manual instruction may be given in training colleges do you think Queen's scholars could be prepared during training to take up the subject and teach it in schools?—There seems to be a slight misapprehension. I was in Westminster before this thing started, and got my special instruction after leaving Westminster, but I do think if the training colleges did take up

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thoroughly the question of training the teachers for manual work they would be the very best people to do it, because they would combine it with their general method of teaching, and that would be a very great advantage. I think Westminster is the only place where they do anything at it, and I don't think that there is enough done anywhere to come to a general conclusion as to the value of it yet, but I do think if the training colleges would take it up it would be the very best thing.

8078. But so far it has been found necessary to go to some institution other than the training colleges in order to get qualifications?—Yes; in England, the City and Guilds people are the recognised examining authorities, and while other people have tried to be authorities and issue certificates they have gradually succumbed to the superior standing of the City and Guilds, and I think if the training colleges took it up they should aim at their teachers getting certificates from the City and Guilds. I should be against the training colleges being the examining authorities

8079. Do your duties bring you into contact with instruction in literary subjects?—I am in and out of the schools and always see things with a teacher's eye.

8080. Can you say whether manual instruction has helped or retarded the ordinary course in school? —Most certainly helped. I am not going to say this, that when a boy has been at manual instruction for an hour and a half, if you take him away and put him at grammar he will directly do his grammar lesson better because he has been at manual instruction for an hour and a half; but I say that a kind of earnestness of character is necessarily brought out in successfully dealing with material things which tells in other work. All these things go to develop a boy in such a way, and intensify his character, that he brings to bear on his other work a more intense individuality; but I am not going to say that because a boy can produce a plane surface he can therefore parse a difficult sentence. I do not think the two things have that direct connection.

8081. Are the teachers of manual instruction prone to accentuate the importance of their own subject and press it?—Do you mean in regard to thoroughly teaching the boys or in regard to getting a larger portion of time?

8082. Do they so urge their own work as to render a boy less capable of application to the other parts of the curriculum?—I don't see how they can do that. They have only one and a half hours a week, and you cannot exhaust a boy in an hour and a half a week.

8083. Did you ever notice that boys are more willing to go to manual work than head work?—Oh, yes, certainly.

Professor FITZGERALD.—Might I suggest that "than other head work" would be better.

8084. And that if a boy is puzzled over a problem in mathematics or a question in grammar he will be far more willing to take a plane and saw and work with his hands?—The general testimony of head masters is that boys very much appreciate manual instruction, and appreciate it very much more after they have been at it some time than when they have just begun it, and it really becomes a very popular study. Mr. Nixon, whom you saw yesterday at Brae-street, was telling me the other day that he was asking his organised science school boys, who have all that interesting work with physical apparatus, he was asking them what subject they liked best, and they liked their physics. What they liked next, and they liked their woodwork, and then chemistry and geography and drawing. I should not be surprised if after we have had metal work established there a year or two it takes the place of physics in the matter of first interest.

8085. Rev. Dr. EVANS.—Did you hear the evidence given by Mr. Bott the other day?—No

8086. Would you agree with him that there is a danger of manual instruction encroaching upon the other departments?—There is a danger—it is a question of balance of time. If the Board gave three days a week to manual instruction and two to all the other subjects there would be an encroachment, but as things are at present I don't think there is any danger of manual instruction encroaching on the other subjects.

8087. It would quite be within the competency of the controlling authority over all the schools to regulate that matter and keep manual instruction in the proper place?—Exactly.

8088. Professor FITZGERALD.—The drawing for the woodwork is done in the schools. Could not machine drawing from models be done in the schools, too?—I think not so well. We consider the teaching of machine drawing from models is a special thing. The man wants special knowledge of machine drawing himself which we are not likely to get generally in the schools.

8089. It is on account of the special knowledge required by the teacher which is more usually obtainable in the person superintending manual work? —Yes.

8090. Could this system be taught by peripatetic teachers carrying their tools about?—You could have peripatetic teachers, but not peripatetic tools because of their cumbrousness, you would need to have centres thoroughly equipped, and the teacher to visit the centres, and the tools would have to stand idle while he was not there.

8091. There are a number of small schools in Ireland where there must be twelve boys in these classes, and a peripatetic teacher must be able to visit a considerable number of schools even in a country district?— Quite so, but not carrying his tools.

8092. Captain SHAW.—Tools for twelve boys would not occupy very much space; he would not carry the benches?—I don't think it would be worth while; you would have to have your benches and buildings permanent at these different places, and the tools after that are a comparatively small matter (i.e., to have standing idle).

8093. Professor FITZGERALD.—If he only visited the school once a week, would not the tools be liable to get out of order and rusted?—They wont get so much out of order as they would if used every day of the week, and the rust of course can be prevented by the use of vaseline or paraffin, but I think it would be most clumsy and unworkable to try and cart the tools about, because of the expense of the conveyance and the difficulty of checking.

8094. CHAIRMAN.—Possibly one centre might be made useful for two or three schools, and the teacher take charge of two or three schools. Could that be done, suppose one building in its equipment could be made available for three schools within reach of it? —Yes, that is the system we have.

8095. Whereas a peripatetic teacher must take two or three centres?—Yes, or more; each one of which would be for two or three schools; it is simply a question of time and numbers.

8096. Professor FITZGERALD.—Do you think that if an apprentice started with this advantage that the result will be that the workmen in future will be better equipped for their work when they begin as workmen, and consequently be likely to get better pay?—I don't know whether they would be likely to get better pay, but they certainly would be likely to do better work: they would go to the mechanical arts very much in a similar position to what boys with their literary education occupy when they go into an office; they have the facility for reading, writing, spelling and calculating; it only has to be applied to the particular business of their office, and so if we give the boys this kind of training they have only to apply it to the particular trade to which they may go, and they certainly would become, I think, very much better workmen, because they have got a better

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start, and they ought to be able to do with a shorter apprenticeship too.

8097. If they had the same apprenticeship, you think the average workmanship of the country would be improved?—Yes, if the masters would keep them to their work, and not try to get a cheap form of labour, quite irrespective of the boys learning their trade.

8098. In introducing this into a new place where there were difficulties in introducing it, difficulties raised by teachers, how would you proceed?—I should talk to the teachers, I should let them feel that I was a teacher with them, and whilst I cannot tell you the exact steps I should take, I feel pretty sure that the fact of its being for the benefit of the boys, and that it was a success elsewhere, would weigh with them very strongly, and that in the course of a very few years you would find the teachers would be co-operators in this matter, and not obstructionists. When we began with this some of the teachers were wondering how they could afford to lose their boys for one and a-half hours a week, the boys were going out of school, and they had to do the special drawing in addition. We don't hear anything of that now. I think there would be much objection now if the Board proposed to keep any school from manual instruction; opinion has swung round so completely.

8099. Mr. Struthers.—I suppose you think that if you have a complete course of science instruction in a school there is still a reason for having manual instruction in addition?—Certainly.

8100. Would you state what considerations make you think that, first of all from the practical side?—I have some points here which I can best bring in now. Whilst in the teaching of science—I don't pretend to be able to give this part of the answer as completely as Mr. Lomas would—whilst in the teaching of science the children get information as to physical phenomena, they cultivate the faculty of observation, and the reasoning powers, particularly in the direction of deduction. Whilst that is perhaps the general character of the result of the teaching of science to the children—in manual instruction, first the pupils have to wrestle with material substances, thus gaining a habit of persistence. Secondly, they learn to realize and appreciate the connection between a flat or mechanical drawing, and the concrete thing represented by that drawing, and therefore gain something in the way of trained imagination. Then there is the practical application of the geometry that they learn in the ordinary drawing under the Science and Art Department. Fourth, after realizing from the flat drawing what they have to do they have first, to will rightly, and, secondly, to make the hand and eye in conjunction practically express, or, as I have it here, express in the concrete, what has previously been imagined and willed. Fifth, they gain habits of precision as expressed by correct surfaces, lines and measurements. Sixth, there is the enormous general advantage arising from the fact that while the boys are supple in mind and muscle, and amenable to school discipline—with its fortunate combination of firmness, consistency and considerateness—their minds, eyes and hands are being trained in conjunction, and on some educationally logical and scientific basis, and they are doing physical or practical work under that sense of responsibility that is or ought to be felt in all school work. Seventh, in the doing of practical exercises (and I am using the word exercise not merely to mean part of a thing as distinguished from the whole thing) the effort is automatically registered in the thing itself step by step, with the result, that there is bred a consciousness of the necessity for being right in each step for its own sake. Eighth, the boys very early in life learn something of the dignity of labour, with its steadying effect and its tendency towards earnestness of character, especially if taught by professional teachers, whom they naturally look up to, and they have the advantage of spending their school life in an atmosphere of books, and what they think of as work, combined. This leads to the natural expectation that when they leave school and go to work, they will not think it the proper and natural thing to be therefore done entirely with books. We hope to raise up a generation of student apprentices.

8101. You think that these objects are not to be attained by scientific instruction?—I am giving the points, showing what they certainly get in manual instruction as distinct from science instruction, but I am not a rival of science instruction.

8102. Do you think that there are many of those points that could be obtained by scientific instruction?—I think the majority of those are peculiar to manual instruction.

8103. You spoke of the necessity of having a certain amount of preliminary exercises as distinct from making a complete object?—Yes.

8104. For instance you have an exercise in sawing, No. 5, and then there is another exercise in sawing in No. 7, and then you proceed immediately to the use of the chisel in No. 8, so that you only give your boys the two exercises in sawing?—I don't think you correctly represent that; the work of the chisel is simply new work in No. 8.

8105. You only give your boys two special exercises in sawing, of course the sawing comes in later on; what is the object of these two exercises?—I think there should be some exercise where sawing is taken alone, because if they take sawing in conjunction with something else the sawing might be so badly done that the something else would not work out either.

8106. By confining them to sawing you get them to do the sawing better?—Yes.

8107. Don't you think they would do it still better if they went on for seven or eight lessons?—I think they would throw their saws away and never look at them again; I would do so.

8108. So that it is not at all parallel to the practice of the multiplication table: by the practice of the multiplication table the boys are taught to do certain operations automatically?—Yes, but they know their multiplication tables sufficiently accurately to go on to other sums; you don't keep them in the multiplication table until they know it as perfectly as they ever will.

8109. All the same you give them a great deal of practice in pure repetition in the multiplication table?—And I give them a good deal of practice in these preliminary things, using the saw and chisel for its own sake.

8110. Would the children do exercise 5 more than once?—I think if a boy had done exercise 5 the very best he could, if you give him sawing again you had better vary it a bit in its general appearance. If he has done exercise 5 badly through bad temper, or indifference, or laziness, as a penal matter he should do it again.

8111. You prefer to give him something else to keep up his interest?—Yes.

8112. Is not that what they aim at in the Swedish Sloyd; they do have sawing in the 5th and it comes in in a number of other exercises, but combined with other matters?—If that is so, that is a point where we both are in agreement.

8113. I suppose one objection to weaving as a manual occupation would be that there is not sufficient variety of manipulation?—I said I did not know anything about weaving, but I should think it is quite a technical subject.

8114. But if it were not a technical subject and one that might be practised in a school, do you think there is sufficient variety of manipulation in it to interest the children?—From the little I know about it I should think there is not, but I would not profess to be an authority on weaving.

8115. Then the teachers in the schools take the special drawing for the woodwork as well as the drawing for the Science and Art Department?—Yes, they have a special time for it.

8116. How much time is given to that special drawing?—They arrange for half an hour a week in the 5th standard, it takes a little more because it is a new style of drawing and the relation between the woodwork and the drawing is greater in respect to the drawing, but later on you can with a few lines express something that takes a good deal of time in woodwork to represent. We are governed in what we do to some extent by the Science and Art regulations and all our arrangements are made to suit the conditions we find

8117. In standard 5 they have freehand drawing, I suppose?—I suppose they have, I am getting a little bit dull about the Code, as regards the ordinary drawing.

8118. Do you think there is a necessity for any other form of scale drawing in the 5th standard if they do the preparation for the woodwork?—I don't think it is quite enough, and I think scale drawing should be taken earlier because we have pretty well one type of drawing, and have all these for convenience sake half-size.

8119. Take the question of practical introduction of this subject into Irish schools. A great many are small rural schools?—Yes.

8120. Do you think it would be better to have an itinerant teacher or to endeavour to get the teachers in each of these schools to take up the subject?—You have to consider how many buildings you would have in the proximity of the schools.

8121. Take small schools two or three miles from each other?—At any rate for some time you would be bound to have peripatetic teachers because you would not have a sufficient staff of teachers for one at each school, but after that there is no reason why you should not have a teacher in the school having the special qualifications.

8122. You would not bring the children from these different schools to one centre. You would have to have a separate room in each school for the class if the schools are two or three miles apart. The centre system is not workable?—Lord Belmore said he thought Irish children could easily walk two or three miles.

8123. But take a bigger distance: you would have to have a centre at each place or one where two or three schools might be grouped, and you could have a peripatetic teacher?—Yes, it is very workable.

8124. But even with a separate workroom in small schools the itinerant teacher would be useful?—It is not the ideal method, but it would probably be the best under the circumstances.

8125. In Ireland they have only four hours of regular school time: do you think there would be any hardship in asking the boys to stay in an hour a week?—I would rather make it that they had to stay: it would be easier than merely asking them and leaving it to be dependent on the boys' good will.

8126. You said you would have it taught in the school time?—I mean in the time that the ruling authority has determined shall be school time.

8127. But the hours in Ireland are four hours for secular instruction?—Then make it five hours a day on one day of the week: we have that for the woodworking in our centres.

8128. If you have manual work taught in the rural schools by the schoolmaster, some sort of supervision would be necessary?—A great deal would be necessary for some considerable time.

8129. An ordinary inspection by an inspector who knew nothing of manual instruction would not be of much value?—No, it would be worse than useless, because he might get the idea and the master might get the idea that it was all right (even if it were not), and if he was wrong it would rather intensify the wrong from that fact.

8130. Either a special inspector must be engaged for this purpose or you must train your inspector as well as the teacher?—Yes, and I think to engage the specialist would be the better thing.

8131. Rev. Dr. Wilson.—What steps should we take in Ireland to provide teachers for this manual instruction?—*Witness*—Immediately?

8132. Yes, as soon as we started it?—I think one way would be to establish centres for the instruction of teachers where they could attend on Saturday morning or Saturday afternoon, or some other convenient time, centres in some convenient town, make some arrangement whereby teachers from the surrounding villages could have their travelling expenses paid, hold out some sort of an inducement if they gain a certificate (it would be an additional qualification that will be recognised and availed of in the course of the year). By that means you would cover the whole of Ireland with teachers, who under sufficient supervision, I mean expert guidance more than anything else, can take up manual instruction. Then I should have some sort of examination and certificate. I don't know whether the City and Guilds operations would extend to Ireland, but if it did they or some other recognised authority could be the examining authority, and there you have got your supply of teachers in the space of about a year, who, I know are only at the beginning of things but would be sufficiently advanced to start the work, and as time went on you would get your teachers more highly trained; and I think it would be a good thing if it was introduced into your training colleges, and pupil teachers had it as a part of their curriculum. I don't see why it should not be embodied in the pupil teacher's course, in fact, I see reasons why it should be embodied in the pupil teacher's course. You could arrange for teachers to start the work very soon and could always guarantee a sufficient supply of teachers who would be increasingly well qualified for the work.

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8133 It relieves me to hear you say that we could have teachers in a year's time?—I am sure of it; that is, if you had a man at the head who would really grapple with the thing. There is the way clear for him. There may be local considerations of which I know nothing which would altogether interfere with this; but, assuming there is no special circumstance to prevent, I do not see any reason why you should not start, of course, in a humble way and carefully, throughout the whole country within a year from now.

8134. Most Rev. Dr. Walsh.—You said that possibly there might be some local circumstances that would interfere with the introduction of this branch of school work into a particular country?—Of which I may know nothing.

8135. But so far as any special circumstances of that kind might exist, you would consider it a misfortune?—I should.

8136. Not merely in the interests of this particular work or of the industries of the country, but also in the general interests of education in the schools?—Yes, I think so.

8137. About the training colleges you spoke of, in the course of the pupil teachers, I suppose, you include the course of the Queen's Scholars, too?—Yes.

8138. It costs money to introduce this branch of school work anywhere; it costs money in the primary schools, and would cost money in the training colleges?—Yes; but it seems to me in the training colleges where, say, you have one hundred students, that it is a comparatively small thing; supposing they have a hall or room which they could devote to this, then at a cost of about £100 you could provide the plant for starting this.

8139. But it would take that amount of money?—Yes, and that is a very small addition to the training college expenditure. You could have a staff of teachers who could do it, or you could bring in a specialist, of course, at certain times of the week. That would not be a big thing.

8140. Captain Shaw.—If the teachers went through three years' training, would they not get sufficient manual dexterity?—I should like to see pupil teachers have it in small doses all through their apprenticeship.

8141. Mr. Struthers.—Do the pupil teachers here receive manual instruction?—Unfortunately they don't. It is not part of the pupil teacher's curriculum. They may have received it before, during their ordinary school days.

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Mr. Joseph Lomas.

Mr. Joseph Lomas, Science Instructor to the Liverpool School Board, examined.

8142. Chairman.—You are science instructor to the Liverpool School Board?—Yes.

8143. Will you give us some details as to the organising and carrying on of the science work of the Board?—In the first place we have the specific subjects, which are taken from the fifth standard and upwards. The boys take mechanics as detailed in the Code; the girls take domestic economy also as detailed in the Code For the purpose of giving these lessons we have two centres. At each of these centres I have a first assistant, who is responsible for certain groups of schools which are supplied with apparatus from these centres. The lessons themselves are given at the individual schools. It has been a question often raised as to whether it would be worth while to have centres something after the style of the manual instruction; but it has been thought advisable to stick to the schools themselves Although in some cases, where the numbers are small, we might send these few children to have their lessons along with a neighbouring school.

8144. Do I understand that whilst you give lessons in individual schools you keep your apparatus in certain centres and send them about from school to school?—Yes.

8145. As regards assistant demonstrators, do you find it difficult to obtain trained men?—Yes.

8146. How do you meet that difficulty?—We advertise, but we in recent years have found it necessary to insist on every man teaching before a class. We have had frequent cases where the men have shown to be very well on paper, who held the very highest qualifications so far as we could judge, even as to their teaching power.

8147. Yet you found they could not teach when put to it?—Quite so, we found it absolutely necessary to hear them teach in every case.

8148. Now will you tell us something about the lessons given to the boys in standard 5 and in the other classes?—The lessons are of forty minutes each, the teacher of the class stands by while the specialist gives the lesson, and in the course of the week the lesson is revised by the teacher of the class.

8149. How many lessons a day does the demonstrator give?—Four each day.

8150. And are some lessons given in mechanics by the assistant masters?—That is one of the later developments of the system, it has been found that some of the assistant masters have heard the lessons given so frequently, for five or six years perhaps, that they know the lesson practically as well as the demonstrator himself.

8151. How are they appointed and how are they kept up to the mark after they are appointed?—In the first place we see that these men have had some independent scientific training, this is gauged by the number of certificates they hold under the Science and Art Department and from the general knowledge we have of them as teachers in our schools. Then it is made a necessary condition that they should come to the centre each week and see the lesson that the demonstrator gives I may say that he gives it with apparatus which we prepare for him and he rehearses the lesson.

8152. When you say the centre, you mean the centre where the apparatus is kept?—Yes.

8153. How are the lessons revised?—By the school teachers, in the school time, but without the assistance of apparatus except some little simple things which an ingenious teacher may utilize from the common stock of the school

8154. Have you any observation to make with regard to practical work by children?—I think it is hardly practicable at the present stage to let children do practical work from the beginning, in connection with the science lessons. I should like to see it very much, but I don't see how it can be worked. There is a little compromise which might be adopted, as I illustrated yesterday in one of the schools, you may get the children to do the whole of the experiments, bring them out one at a time, and let the child work the experiment. We do very few experiments indeed which might not be safely put in the hands of the children themselves.

8155. Do you find the present course in domestic economy for girls to be satisfactory or the reverse?—It is unsatisfactory in every way, I think.

8156. Will you tell us how the Science and Art subjects are taught and upon what system?—On exactly the same system as the mechanics and domestic economy, the boxes are packed in the central laboratories and taken around to the schools and the lessons are given on exactly the same model. There are other subjects, mathematics and drawing.

8157. And practical chemistry?—That is taught in special laboratories and the schools are grouped for it.

8158. And the children are sent to a special place?—Yes.

8159. As regards mathematics and drawing?—The ordinary school teachers take these.

8160. Do you think that the Science and Art course of lessons is suitable for ex-standard scholars? and also do you think that the examination is suitable as regards the course of lessons set out by the Science and Art Department?—I think they are admirable, but there is much to be desired in the way of examination, a child has not the faculty of looking round a question when it is set to him. An adult will see the meaning of the question which is frequently cloaked, whereas the child looks at the first thing that strikes his eye and answers the question straight away. If there was a different style of examination where the examiner could question the children and get to know what they know, it would be more satisfactory.

8161. Professor Fitzgerald.—*Viva voce*?—Quite so.

8162. Chairman.—Do you think that if less were attempted to be taught in one lesson, as we have seen here, it would be an improvement?—I think so.

8163. And that more time was devoted to teaching a subject?—Yes; at present the syllabus has to be got through in a certain number of lessons, and consequently it is a rush.

8164. As regards science classes for pupil teachers, can you mention any circumstances which hinder their efficiency?—The aim of every pupil teacher is to get a high position at the scholarship examinations, and there are certain marks which count in science, these marks are assessed on their success in the Science and Art examinations; now the Education Department has stated that marks for science should only count in certain subjects and that they must sit for those examinations in certain years, consequently we have no free hand in making out any scheme of instruction in science for the teachers, we are crippled. The students must take a certain stage in a certain year, and consequently it is most unsatisfactory.

8165. You think it of the highest importance that pupil teachers should gain a high position in the Queen's Scholarship examinations. That being so, do you think that, under present conditions, it is difficult to do this, and at the same time to get a good training in science?—It is difficult; almost impossible

8166. As regards evening classes, what do you think should be the principal subjects at these schools?—In the evening schools the matter has to be looked upon in rather a different light from the day schools; the pupils are mostly young men who have left school and are looking for something to help them in their ordinary life, so I think the instruction ought to bear somewhat on the industries of the neighbourhood and on the tastes of the individual students.

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8167. You think it better to follow the scheme of the Education Department rather than that of the Science and Art Department?—Yes, as it is more flexible and the examination difficulty does not come in.

8168. What do you say about the value of the certificates issued by the Science and Art Department?—I attach the utmost value to it. When a child can show a certain number of certificates in seeking a situation it counts for a very great deal. I know from personal experience this is the case, and if we take these subjects under the Education Department, certificates are not given.

8169. As regards the head and assistant teachers, has the introduction of Science and Art classes in school created a desire among the teachers to improve their own status in science?—It has.

8170. Rev. Dr. WILSON.—I understood you to say that a specialist went round and taught lessons in the presence of the teacher?—Yes.

8171. And the teacher in every case is supposed to take notes and teach the class again?—Quite so.

8172. That is found to work satisfactorily?—Yes.

8173. You say, I think, that the domestic economy is very unsatisfactory?—Yes, I consider it unsatisfactory.

8174. Does the Education Department tie you down to a continuance of that state of things?—Not absolutely; other schemes may be inaugurated which have the approval of Her Majesty's inspectors; but I am speaking of Liverpool and the syllabus which we have adopted here.

8175. I should be very pleased to get any information on domestic economy as regards our poor families in Ireland. What changes would you propose if you had a free hand?—I should propose a combined scheme to embrace the salient points of mechanics and domestic economy, to be given to both boys and girls, and the science teaching should be alike for both sexes. The main defect in the mechanics course is that we get certain principles of science initiated without any structure being built upon them. The girls' course is all the application of principles without any principles being taught in the first place. I can give you an illustration: take a lesson on the air—the boys learn about the expansion of the air, I think it might be followed up to its logical conclusion, and we could speak about the ventilation of buildings, etc. That is excluded from the boys but given to the girls, and the girls' course does not include such questions as the influence of heat and air and its expansion.

8178. Mr. STRUTHERS.—You spoke of the syllabus in domestic economy which you have to adopt in Liverpool; why have you to adopt it? The Code gives complete liberty to managers?—I did not mean that we were compelled to, but the Board has adopted that system and I have to work it.

8177. So you are compelled by the Board, as it were?—Yes.

8178. But it would be open to the Board to adopt another scheme on your advice or on the advice of some other expert—such a scheme as combined mechanics and domestic economy?—Yes, for boys and girls.

8179. You are aware that in the Code there is an alternative scheme for domestic economy?—I have seen that—an improvement on the old scheme, but it does not meet my idea of what science training should be.

8180. One important consideration in your view being to give a combined course in which science and domestic economy could be taught to both boys and girls?—Yes.

8181. Would you teach this combined course to the poorer girls of the school?—Yes; I consider girls who have to do with mangles and bicycles and pokers and things like that should know something about the principles of the lever and pulleys, and boys who have to wear clothes and live in houses should know something of the principles that underlie the rules of health.

8182. Would you apply the same thing to training colleges? The teachers should have a *general* course of scientific instruction to fit them for giving instruction in elementary schools?—Yes.

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8183. So that it would be better not to induce students to take out a number of certificates, as they do at present?—No; if they had a general scheme of science worked out specially suitable for their future work.

8184. I think you said, in selecting your teachers here, you consider the number of certificates?—But that is only one basis; that is some guarantee.

8185. Do you think a man is a better science teacher according to the number of certificates he happens to have?—Oh, no.

8186. You consider the nature of the training he receives is much more important?—Yes; these men we know, and we know how they can teach.

8187. You remember that some of those who came to you with good teaching certificates did not satisfy you in the matter of teaching?—Yes.

8188. Where did they obtain these teaching certificates?—At the training colleges in some cases.

8189. Certificates as to special power in teaching?—Yes; we have had them bringing most glowing accounts of their powers of teaching.

8190. So clearly there is a difference of experts; they ought to know how students could teach, and you find your experience does not agree with theirs?—Quite so.

8191. Professor FITZGERALD.—Was that specially in the teaching of science?—No; as teachers generally.

8192. Mr. STRUTHERS.—You spoke of the examination of science classes in elementary schools—how is that done at present; science is taught in the 4th and 5th?—In 5th, 6th, and 7th the examination is conducted.

8193. Is science not given as a class subject in the 3rd and 4th?—I am not quite clear about that; the remarks I made on the examination had nothing to do with specifics, that was the Science and Art Examination—the specifics are examined by Her Majesty's Inspectors.

8194. That is done *viva voce*?—Yes.

8195. Professor FITZGERALD.—If a scheme of science instruction with practical work for each child to do all the experiments itself, could be invented, would it not be an improvement?—Yes; it would.

8196. Have you considered Course H in the Education Department Code?—I don't exactly remember it at present. (*Syllabus produced.*) Oh, yes, I have looked at this; it is chemistry and other things.

8197. It is a combined physics and chemistry course?—Quite so.

8198. It is intended to be an introduction to the principles of experimental science, as distinct from the mere information in any particular experimental science; would you not think that a desirable course to introduce, suitable for both boys and girls?—I think so, but there is nothing here that would involve the principles of health or clothing.

8199. There are some of the things, for instance, hard water; I don't know whether there is anything on the conductivity of heat—there is the method of measuring heat; that would underlie the principles of clothing?—You want something a little more specific.

8200. Do you think science teachers require special instruction in the method of teaching science?—Yes.

8201. Do you think that they could get that without practising schools and without having some experience in teaching science?—Certainly not.

8202. Do you think a course like what you suggest, suitable for domestic economy, could be invented—suitable for agricultural districts, leading up to a course in agriculture?—Yes; I should think so.

8203. Elementary object-lessons in botany and experiments in the growth of plants without manure, and so on?—I can hardly speak with certain knowledge on that point, but I should think there would be no difficulty in the matter.

8204. Is there any great expense involved in introducing science teaching into schools?—No, sir; the cost of apparatus to illustrate the whole of the mechanics of the fifth standard would probably not exceed £5.

8208. And that would do for how many classes?—That would do for all the schools; we have some thirty schools.

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8206 So that the apparatus that is required for teaching science is not as expensive as is required for the manual work?—I have no idea what the cost of the manual work apparatus is.

8207. You think, as a result of your experience, that the science teaching does cultivate the intellects of the children?—Yes, certainly.

8208. And therefore you would not class it as a distinct thing from grammar as an intellectual training you would think it is an intellectual training of the same class as grammar is?—It is something more than that; it is intellectual training with something of use to follow.

8209. Most Rev. Dr. Walsh.—Is there a printed syllabus of the course of science lessons, at one of which we were present yesterday?—We have not them in print; I have some of them in manuscript.

8210. Is it available for use by the Commission?—Certainly; I shall be very happy to supply you with a copy.

8211. Is it a complete syllabus of the course in elementary science?—Only in the specifics

8212. We have had some little confusion about the terminology in the Code. Have you sufficient knowledge of the details of the Code to explain how these three classes of subjects are distinguished?—Mr. Nixon would know that better.

8213. What are the particular points in which you consider the domestic economy course is wrong?—In the fact that it involves no training; it is simply a collection of facts. I don't see how the course as it is set out in the Code can be made to involve any scientific training.

8213a. The connection of these facts with the scientific principles that underlie them is not brought out?—No, it is altogether empyrical.

8214. What are the principal branches which you include in the general term domestic economy?—Food and clothing and the house.

8215. Do you include cookery?—No; only the principles that underlie cookery—the effect of heat on food.

8216. But cookery is taught in Liverpool not as a branch of domestic economy?—No, altogether distinct from it.

8217. Do you include physiology under the head domestic economy, so far as it refers to breathing and respiration?—Certainly.

8218. And I think some of the Commissioners were present at a lecture on the process of digestion; is that included in domestic economy?—Yes, in the later stages. In stage 3 there is a little physiology introduced.

8219. But merely taught as an isolated subject?—Quite so.

8220. The various branches are not strung together in a scientific way?—No.

8221. In London we found there is a new development of this subject. They include under it housewifery—the tidying up of a room in a dwellinghouse, setting out the tables, making beds, and all that sort of thing. Have you any provision for such work in your system?—Yes, we have, but not practically. You will note on the scheme I handed in to you just now there is a list of so many lessons—seventeen lessons—for the first stage, and then there is a note at the bottom, "Heads of lessons suitable to be given by the teachers in the school."

8222. These matters are dealt with merely by lecture. There is no practical demonstration by the teachers or practical carrying out of the work by the pupils?—Except so far as a teacher of the school chooses to do that.

8223. But it is not a necessary portion of your scheme?—No.

8224. We have found it in one or two places in London?—They have instruction in that. The teacher of the school teaches them how to sweep the room, and dust it, and make the beds.

8225. Does she merely tell them, or show them, how to do it, or does she also get them to do it themselves?—I have not been present at one of those lessons.

8226. I take it that, generally speaking, instruction in domestic economy is theoretical rather than practical—it is done by lecture, and possibly by demonstration?—Every lesson given by the demonstrator is accompanied by experiments.

8227. Mr. Struthers.—How could she demonstrate making a bed in a class-room?—I say that is one of the parts of domestic economy that the teacher illustrates herself.

8228. Does the teacher of the class demonstrate this particular thing—bed-making?—I don't know; I don't think so. I have not seen any provision for it.

8229. Most Rev. Dr. Walsh.—There is another matter about which it may be useful to ask you a few questions before the close of your evidence. I believe that for a considerable time the school authorities in Liverpool have paid attention to the various practical branches of school work?—Yes.

8230 You had them in operation here even before the report of the two Royal Commissions—the Commission on Elementary Instruction and the Commission on Technical Instruction?—Yes, they have been in vogue here for nearly twenty years.

8231. And the report of the Royal Commission on Elementary Schools went to a certain extent on the basis of your actual work here?—Yes, I believe so.

8232. And then, after the Royal Commission had reported in favour of the system, you followed it out more completely than had been done before?—Yes.

8233. Do you remember a letter that was written by the Liverpool School Board in 1889 in reference to the Royal Commission,—they were a little piqued by a reference they saw to Liverpool teaching in the report of the Commission; the teaching here was compared unfavourably with the teaching in other places?—Yes.

8234. But I believe the Liverpool Board was able to show conclusively not only that they had presented a larger number of pupils in these practical subjects, but also that a larger percentage passed: I think they brought out that there were 98 per cent. presented in some of the scientific subjects, and of those, 64 per cent. passed?—We presented all that were available, and the people in other places made a selection.

8235. You were able to show that there was a misunderstanding, and that one set of figures was mistaken for another?—Yes.

8236. Speaking of evening schools you said you considered it better to follow the scheme of the Education Department, than the scheme of the Science and Art Deparment: I don't know that you gave the reason in detail?—We can make up our own syllabus in the case of the Education Department and hand it to Her Majesty's Inspector, and he approves or disapproves, and we can give the instruction on any line we like.

8237. And the Department approves it as an alternative scheme?—Yes.

8238. We noticed in the English Code in several cases that alternative schemes are recognised and formally embodied in the Code?—Yes.

8239. Are we to understand that, in addition to this, alternative schemes are recognised for use in particular places?—Yes, that is what we have done.

8240. Even though it may not have been necessary to insert them in the Code?—Yes.

8241. Is there any general record kept of these approved schemes at the Education Department?—I don't know.

8242. Captain Shaw.—They are only submitted to the inspector, and never go further than him, and then go back to you?—We have a copy of them and they are approved of by him.

8243. Most Rev. Dr. Walsh.—A certain number of them are embodied in the Code, but only as samples?—Yes, they are not obligatory.

8244. A particular locality is not limited to those alternatives in the Code?—No.

8245. You consider that this local latitude under the control of the Department works well?—Most admirably.

Mr. R. Nixon, Principal, Brae-street Board School, Liverpool, examined.

8246. Chairman.—You are the principal of the Brae-street Board School?—Yes.

8247. I understand that you are prepared to give us some information with regard to the manual work done in the infant school and in standards 1 to 4?—It is only of late years that the Liverpool Board have introduced what we call advanced kindergarten. In our infant school we had kindergarten taught from the babies up to the time the children left the infant school, then we began in standard 5 with the children going to manual instruction, but we had no connecting link between the infant school and standard 5, so the Board introduced a system of kindergarten which Mr. Hewitt drew up, and which has been in work now in the Board school for several years.

8248. And you find that these things fit in with the other subjects of education, such as arithmetic and drawing?—Yes, sir, but there are certain parts of the course I like better than the others, and I find children prefer certain parts of the course, and educationally one can use certain parts better than others. For instance, in standard 1, suppose you took a piece of ordinary paper and divided one side into so many lengths and the other side into so many, we would teach the children multiplication. The child does the drawing and also the cutting out of these different sections.

8249. Are drawing and arithmetic practically taught at the same time?—Yes, and the children can get even an elementary knowledge of fractions. If you divide certain pieces of paper into five different portions, and utilise the fact that one portion is one-fifth of the entire piece, you get two-fifths and three-fifths, and you are teaching elementary fractions in the very lowest standards.

8250. With regard to the kind of exercises which require few materials?—One of the great drawbacks to the introduction of kindergarten into an elementary school, or the introduction of any subject, is the amount of apparatus. The fewer pieces of material you have for the children to work with the better, because you need a place to keep these materials, and there is the trouble of getting them out, and the trouble of putting them by, and the less apparatus you have got to work with the better. I find lessons can be equally well given with little apparatus as with much, if the apparatus is of a proper kind. In advanced kindergarten we might introduce exercises where we give each child six or seven different articles—that is a big waste of time—giving these articles out and collecting them in. I should prefer exercises where you had a few materials, a piece of paper or a piece of clay, or a piece of wire.

8251. Have you anything to say with regard to exercises having a definite aim?—Yes, I should have the exercises so connected that one exercise led on to another, not only in kindergarten, but also in the elementary science course; one might have lessons on subjects that were detached, no connection between one lesson and the preceding one. I should have a definite aim running through the course both in kindergarten and science.

8252. Would you explain that a little more fully?—Supposing I take a lesson on water to-day, and a lesson on a poker to-morrow, there is very little connection between the two, but if I follow up the water with a lesson on ice, and follow up ice with a lesson on steam, I have a connection between those three different subjects; I am teaching the child the three forms of water—first, water as a fluid body; then give him ice next day, the child knows it is simply water in another form, do my experiments with this ice, and show him how different this is to what it was in the other form, and then go on in the next lesson to steam.

8253. He knows steam is water in another form?—We do it in front of him.

8254. Professor Fitzgerald.—You can turn ice into water very easily?—That does itself as the lesson goes on.

8255. Chairman.—Coming to plastic work; do you find it is popular with children?—That is the most popular work we do, children seem to like something which they can handle, something which they can shape, which they can see growing under their fingers.

8256. Professor Fitzgerald.—In what standards do they do that?—In all standards, even in the infant school.

8257. Do you do it up to the fourth standard?—In the fourth we get wireworking, which they can turn into various forms.

8258. In which standards do you take clay modelling?—We begin with the infants, and go to standard 3; in standard 4, we introduce wireworking and cardboard.

8259. When you get into the higher standards, you go back to the modelling?—We go to the woodworking; we don't do clay modelling until after they have gone through 5, 6, and 7.

8260. Chairman.—I suppose they can apply the principles they have learned in the infant school to clay modelling?—Yes; we don't run it through perhaps, so much as I would like to see myself.

8261. What are the advantages?—The child is working with an object. The greater part of the other work is done on the plane, drawing, reading, and writing, and he is not introduced to solid objects. When you introduce him to clay modelling, he has something he can handle, and see round, and it is wonderful the interest the child takes in it.

8262. What would you say about the disadvantages?—The disadvantages are, you need a separate room, and you cannot work in the ordinary class-room with the clay, for the desks get so dirty, and it is hardly possible to take another lesson in that room that day until the place has been thoroughly cleaned. Again, no teacher can take many children on a subject of that sort. A teacher working with clay modelling, or card-board work, or wire-work, must follow closely and carefully each child's work, and I find 20 is about as many as a teacher can take: a skilful teacher may manage 30, but it is a big strain on any teacher to take even 30.

8263. What is the feeling of children towards manual instruction generally?—They are exceedingly fond of it, I think it is the most popular work in school with children throughout all the standards except in the ex-seven standard children, the organized science school: there I find that with the boys practical chemistry is the favourite subject. I was very much struck with that. I carefully worked out the results from asking these children, getting them to write down on paper for me how they liked their various subjects. I found chemistry was the favourite with the boys, then physics and manual instruction closely following one another.

8264. I don't quite understand what you mean by practical physics as regards girls?—The girls work the same practical physics as the boys in the organised science school, for instance, such exercises as making a barometer or thermometer.

8265. What work is done in the ex-standard classes?—That is the organised science school in the seventh standard: there they take practical and theoretical chemistry, practical and theoretical physics, manual instruction, and then the ordinary English subjects and drawing: we do a large amount of drawing.

8266. That includes machine drawing?—It will include machine drawing: we have not yet taken it, but we are making preparations. we also do Latin and French.

8267. How far is a boy's choice of a career affected by the work he does?—That is a difficult matter to

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speak about. I took out the figures this morning of the boys from my school as to the work they had gone to; it is hardly fair to take my school as representing the usual thing in Liverpool, because we are not in the neighbourhood of any big works, and Liverpool is hardly the town to take as an example. Out of 15 boys who left me in standard six and seven during the last six months, 8 of them went to be clerks, 4 went as messenger boys, and 3 went to secondary schools. In six-standard classes during the last nine months, 22 have gone to be clerks, and 14 have gone to applied industries, 2 to bicycle making; 1 gone to electric light works; 1 to surgical instrument making; 2 to be chemists; 1 a cooper; 1 a plumber; 3 engineers, and 3 in the telegraph office.

8268. Do you mean to work as clerks?—No, as telegraph boys· gradually they will work into the department.

8269. They have gone into a department of the Post Office?—Yes.

8270. There is one subject I should like to ask you about, and that is with regard to manual work, do you think there would be great difficulty in applying it in the rural schools in Ireland, and if so, why?—The difficulty of applying it in the rural schools begins with the teacher; you will have a difficulty in getting the ordinary teacher to take manual instruction. Granted that you begin with new teachers entirely, you will not have to meet the difficulty that you will have to meet in taking the teachers you have now got in Ireland or in any other country district. I speak from my knowledge of English country districts, for I have been in a small rural district school for 3 years.

8271. Most Rev. Dr. Walsh.—You were there alone without a pupil teacher or assistant of any kind?—Yes, and it will be a very great difficulty in getting these men now in the schools to attend a central class to learn woodworking.

8272. Chairman.—Would that be because of their age or because their habits have got fixed?—Their habits have got fixed. It would have to be taken outside the ordinary school time, because if that teacher has got charge of all the children in that elementary school, boys and girls as well, whilst he must devote his time entirely to the boys who do manual work, he cannot look after the others. Then again we don't begin in England until we get into standard five, and in manual work the number of children you find in standard five, six, and seven in a school of forty or fifty children is exceedingly small.

8273. The idea has been suggested that in Ireland we might have a centre which would combine three or four rural schools?—As far as I can see at present from my own knowledge I should think that a centre established for several schools would in many cases do very well indeed, because boys in rural districts are not like boys in town: they don't mind a walk of four or five miles to a centre.

8274. Most Rev. Dr. Walsh.—You think it would be necessary to have special instruction for our present teachers in Ireland if this method of instruction was to be introduced: that seems to be quite obvious?—That is, if you introduce the advanced work in manual instruction.

8275. We are now speaking of working in wood. But suppose we had a method of instructing teachers, and found the teachers willing to be instructed, what difficulty would there be in introducing this subject?—None at all: if you found the teachers willing to be instructed and if you provided them with a room and materials, there would be no difficulty.

8276. It so happens that there has been in Ireland a widespread demand, on the part of untrained teachers, to get some short course of training, could some instruction in this manual work be made the basis of a useful short course of training?—Yes, if you can get the teachers to go.

8277. We have teachers crying out for something in the shape of short training courses, clamouring for it? *Witness.*—One generally finds that at the beginning, but then is the interest kept up afterwards?

8278. Suppose we were gradually renewing the body of teachers throughout the schools of the country, as, of course, there is such a process continually in progress, to what extent do you think it possible to have the woodwork instruction introduced into a rural school in which there is only one teacher?—Quite easily if that teacher has been taught either during his apprenticeship or during his period of training to teach this subject.

8279. How can he manage to keep this going simultaneously with other subjects?—That would be a difficulty; you would have to take it with the children out of the ordinary school time.

8280. Is there more difficulty in dealing with this work in a small school than there is in dealing with such a subject as formal grammar: the children require to be looked after when learning formal grammar, which with us is a compulsory subject?—I am sorry it is a compulsory subject.

8281. So indeed am I. But whilst it so continues, it is a subject that requires to be looked after individually, and to that extent it seems to stand on the same footing as the woodwork?—I think a man could learn to teach woodwork sooner than he could learn to teach grammar.

8282. In teaching woodwork there must be a certain amount of noise made: on that ground I suppose it would be inconvenient to have it going on at the same time as the other work?—I should certainly object to its going on in the same room.

8283. If the teacher were away, looking after the woodwork, I am afraid the boys would not attend to the other subjects?—He would have to take it outside the school hours.

8284. I believe that in England there must be a second teacher where there are sixty pupils?—Yes.

8285. And even that provision is not considered satisfactory by the Education Department?—No.

8288. I think in the Code recently issued they insist that there must be a second teacher if there are even fifty pupils?—Yes.

8287. That is to come into operation next September. In the view, then, of the English educational authorities there must be henceforward a second teacher if you have 50 pupils in the school?—Certainly.

8288. So that even the special difficulty you speak of would not apply to any school in which there were more than 50 pupils?—Oh, yes, it would; you are only taking out of our little country school 10 or 11 children, you are leaving that other teacher to take the whole of the standards, the very point that the department wished that other teacher to come in for.

8289. But they are only taken up for one-and-a-half hours?—It does not matter, they are taken up.

8290. What are your school hours in Liverpool?—From 9 to 12 and 2 to 4.30, about five and a-half hours a day, twenty-seven and a-half hours a week.

8291. Ours is between twenty and twenty-five, so that there is a margin that could be utilised for this work. There was some opposition, I suppose, to the introduction of this practical work into the English schools. You have experience of the two states of affairs, first before this work was introduced, and secondly, since its introduction?—Yes.

8292. Was there any opposition made to the introduction of it?—There may have been opposition on the part of some.

8293. There were four classes of people from whom opposition could come—the parents, the children, the trades unionist people generally, and the teachers of the schools. Take the first, the parents?—Not the slightest opposition.

8294. Though I suppose many of them did not understand why it was introduced?—They trusted to the good sense of the Board and of the teachers, I think.

8295. Next as to the trades unionists?—I don't know, I cannot say. I believe there was a little

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friction in some places, but it was got rid of when the thing was understood

8296. Then, on the part of the teachers?—I cannot speak for all the teachers, but I think the great majority of teachers in Liverpool, or any other place, if they find a body like our Liverpool School Board wish any system worked that they have carefully considered, I think the teachers will loyally, as far as they can, help to work that system.

8297. What is the present view of the teachers as a body on this subject?—I think they are very much in favour of it; I never heard anybody speak against it.

8298. I suppose they fully understand the educational aim of this branch of work, that it is not merely preparing children to be carpenters or members of a particular trade?—Yes.

8299. It is popular also with the children. Can you say from your experience what has been the effect of the introduction of this manual work upon the general work of the school?

Witness.—Do you mean right from the lower standards upwards?

8300. Yes; up to this we have been speaking rather of the working in wood in the higher standards; the intervening standards have been spoken of as advanced kindergarten; it is a development of the kindergarten, forming a bridge between the work of the infant school and the woodwork of the higher standards. What is the effect of the introduction of these intervening branches?—Time had to be taken off certain subjects. I might point out that at the same time that kindergarten was introduced, elementary science was introduced, and nothing was taken off in Liverpool at all. We took exactly the same amount of subjects as before.

8301. But you gave less time to some?—We gave less time to some. I think the three R's suffered most, and the one that suffered most of all would be handwriting and spelling.

8302. When you say suffered, you mean less time was given to it?—Yes

8303. But did they really suffer in the result?—I think handwriting has, but reading has not.

8304. Did you take any time off reading?—Yes, we did.

8305. The pupils have not as much exercise in handwriting as they had formerly?—They have not.

8306. That would be a drawback to that class of pupils who aim at becoming clerks?—They pick that up later on.

8307. But it would not be very much of a drawback to the ordinary industrial pupils?—No.

8308. They learn to write very fairly?—Quite so.

8309. CHAIRMAN.—A person's handwriting sometimes improves as he grows older after he has left off learning?—Yes, and if he goes into an office they will take care he does write better.

8310. Most Rev. Dr. WALSH.—And possibly the training of his hand, as his muscles develop, will make him write better?—Yes.

8311. Take the general subjects of the school?—I don't think they have suffered at all; there is an increase in the intelligence of the pupils, and it has improved the teachers. I think our elementary science course has had a splendid effect upon the teaching of the teachers.

8312. Do you think it brightens the intelligence of the children?—Oh, yes; they like it as a relief from their ordinary lessons; they like it as something they can see and have a conversation with the teacher about.

8313. And then probably they turn with greater zest to the other subjects than before?—Yes; they don't get so wearied of it.

8314. Do you think the introduction of all this practical work has any effect on the regularity of attendance; your record of attendance is very high in Liverpool?—I would not like to say it is entirely due to this.

8315. You have the compulsory machinery in force?—I would not like to say how it enters into the attendance; a number of things combine; take my own school, I find that in certain classes the attendance is remarkably good; in other classes it is not so good; that is the personality of the teacher.

8316. So you think the teachers can do a good deal to secure a good attendance?—I think they can do most.

8317. Especially when they have got hold of the children; compulsion helps you to bring the children under the influence of the teacher?—Compulsion helps us, but it is the teacher makes the attendance; it is a difficult matter to get at parents who won't send their children to school at all.

8318. But at all events when the children are there, they are induced to attend more regularly if they find the school made attractive by the efforts of a good teacher?—Undoubtedly.

8319. You think an ordinary school teacher better than an artizan for teaching elementary science and the various developments of the kindergarten work?—Yes, certainly.

8320. What about the woodwork?—I cannot say, because that is not under my supervision.

8321. Well, Mr. Pearson's opinion on that is worth a good deal?—It is Mr. Pearson you want to go to for that.

8322. He has expressed a decided opinion that the ordinary teacher is the person to be preferred. You don't neglect cultivating the power of expression of the children when they are engaged in the advanced scientific work?—No, because they have to write an account of what they are doing, and one can judge their composition by that.

8323. You call attention to defects and points of excellence in the written work they have done in that respect?—Certainly.

8324. Do you find that the children succeed in expressing themselves satisfactorily?—I think so.

8325. They describe the experiment, and I think they also describe the apparatus that they use?—Yes, they do; they draw it as well.

8326. And you find they do both satisfactorily?—I think so; at first they are a little bit vague in reporting a science lesson; but as time goes on they get accustomed to it.

8327. You think they succeed in describing everything so as to make it fairly intelligible to a person who had not seen the experiments performed?—That is what we aim at whether we succeed in doing it or not; that is what we try to get at.

8328. There is one other point—the distinction of the various classes of subjects in the Code; under what heads are the subjects arranged?—We have first of all got in our English schools the elementary subjects—reading, writing, and arithmetic.

8329. Tell us the names of the different heads first?—There is the elementary, the class subjects, the specific subjects, and the Science and Art Department subjects, and then there is drawing

8330. Now, the elementary subjects, what are they?—Reading, writing and arithmetic. The inspector is supposed to examine on those subjects, and we get a grant on them: in class subjects there is a choice, geography, history, English, elementary science; we in Liverpool take all four.

8331. You are at liberty to take four?—As many as you like; but they only pay you in two.

8332. Mr. STRUTHERS.—In every class?—Yes.

8333. Most Rev. Dr. WALSH.—You must take one?—You must take one; they will pay for two.

8334. Professor FITZGERALD.—Must not one of them be elementary science?—One up to some time ago was bound to be English; I think object lessons are now introduced as one of them.

8335. Most Rev. Dr WALSH.—Special grants are made on class subjects?—We get 2*s.* a head for them.

8336. The fundamental grant to the school is made on the elementary subjects, and it is a grant of 10*s.* or 12*s.* 6*d.* a head?—Yes; 12*s.* 6*d.*, or 14*s.*

8337. Then, we have class subjects, on which also you have a variable grant of 1*s.* or 2*s.*, according to

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the way the work is done?—Yes; but those must be taken throughout the school; if you take them at all every child must take those subjects, if you take geography every standard in the school must take that.

8338. If you take elementary science?—You will have to get the consent of the inspector: you cannot change.

8339. Mr. Struthers.—You may have science in 1, 2 and 3, followed by English in 4 and 5?—Yes, that is with the consent of the inspector.

8340. Most Rev. Dr. Walsh.—A scholar could not take two subjects in one standard, and one in another?—Not to get paid for them: you would only be paid for the number of subjects that you take in all the standards.

8341. Now, as to the specific subjects?—They are not taken until you get to standards 5, 6 and 7; you can take them as low as 5, but you need not begin until you get to 7: they only pay you on the number of children you present.

8342. In a class subject, say in standard 4, do they pay you on the whole number of children in the standard?—That is not a class subject, a class subject is paid throughout the school.

8343. Take standard 4, and any class subject you like—is the grant paid on the whole number of children in that standard?—It is not paid on any one standard, but throughout the school; the number of class subjects in each standard must be the same throughout the school.

8344. Then the grant is paid on the number of children in the school in all the standards?—Yes.

8345. It is paid on the number of class subjects taught to all the children?—Yes.

8346. But a specific subject may be taught only to a certain number of children in the standard?—Yes, above standard 4.

8347. Then, it is paid on the number of children who are taught?—On the number presented.

8348. Although some of these children may not pass, it is paid on the number of children presented?—Yes.

8349. Is there a variable grant, as well as a fixed grant, for these specific subjects?—Yes, it is either 2*s.* or 3*s.* per head.

8350. Take singing, what sort of a subject is that?—It is optional.

8351. Have we another class of subjects then?—Yes, it is optional. You are paid 8*d.* or 1*s.* a head.

8352. Professor Fitzgerald.—Is there any other subject like singing?

Mr. Struthers.—There is discipline?—It is not optional.

8353. Most Rev. Dr. Walsh.—Singing is a class subject?—It must be taken throughout the school: it is really a class subject, but there is a different grant.

8354. If it is taught by ear you get 6*d.*, but no matter how well taught you cannot get more than 1*s.*?—No.

8355. For recitation is there a special payment?—No, it is put in now with reading, writing, and arithmetic.

8356. Professor Fitzgerald.—Then you have 4 R's. instead of 3 R's.?—Yes

8357. Most Rev. Dr. Walsh.—Drawing is a Science and Art subject?—Yes.

8358. Mr. Redington.—You stated that advanced kindergarten and elementary science were introduced into the Liverpool schools at the same time?—Closely about the same time. I cannot give the exact date.

8359. Has the improvement of the boys been due to one of these subjects or to both?—I think it is more due to elementary science in the lower standards.

8360. If you had to introduce one of those subjects into a school which would you select?—Elementary science; I think there is no comparison between the two.

8361. Could elementary science be introduced into rural schools?—Yes: but not the elaborate system we have got: you could not have the seven different standards.

8362. Could you teach the lessons given in Mr. Hewitt's book?—No, not the whole of the lessons through the four courses; you would have to take standards 1, 2, and 3 in a small school together, and 4, 5, 6, and 7 together.

8363. Why could you not?—There are too many lessons.

8364. Is the apparatus too expensive?—No.

8365. It is only that the number of lessons is greater than you could get through?—It is a question of teachers: you could not have the teachers to give the four different courses to the four different standards.

8366. How many courses could be given?—Two, I think, would be quite sufficient, granting you have a school with one person fighting alone: if you had two teachers you could take more.

8367. Two teachers could teach the four courses?—I don't think they could; one teacher would be taken up with 5, 6, and 7.

8369. So if there were two teachers in a rural school you could not teach four courses?—I don't think so: you could teach two or three.

8370. Most Rev. Dr. Walsh.—You could teach a re-arranged course which would cover the whole of that?—Quite so.

8371. Mr. Redington.—Could a teacher who in his collegiate course had not gone through a course of elementary physics, acquire by private study sufficient knowledge to teach these lessons without attending at a centre?—An exceptionally good teacher might, the average teacher could not.

8372. If he attended at a centre, what length of course would he have to go through?—You might send a teacher round who could teach, not simply tell him what to do, but go to his school and spend a day with him occasionally, and take the classes for him; or you might take the teachers to a central place and let some expert teacher teach a class in front of them, not simply talk to the teachers about how to teach a class, but take it and teach it in front of them.

8373. Take the first system; would it be long before the teacher could conduct the lessons himself without the aid of the peripatetic teacher?—I don't think so; it would depend on the number of times the teacher went there

8374. Suppose he went once a week to the school?—In six months it would be ample, he ought to be able to teach any lesson in the book in that time.

8375. As a matter of fact is elementary science taught in many small English rural schools?—It was not taught when I was in them at all, it was not then introduced. I don't know how it is now, it may be common.

8376. Do I understand from you that in future it will be compulsory?—Object lessons will.

8377. Captain Shaw.—Object lessons are not necessarily elementary science?—No. I might point out that under the Liverpool School Board we take object lessons too; they are quite distinct from the elementary science lessons; in my school we take lessons on animals for the object lessons.

8378. Professor Fitzgerald.—Do you bring a horse into the school?—No, sir, they see the horse on the street.

8379. You call that an object lesson, even although the object is not present?—You cannot always teach object lessons with animals present, just as in a reading lesson, if the child is reading a description of scenery, we cannot bring the scenery before him.

8380. Mr. Redington.—In elementary science are the pupils asked to conduct the experiments themselves?—In some cases they are; the whole of the children don't do the experiments, but occasionally a child is brought out and the teacher lets one or two children do experiments during the lesson.

8381. From your knowledge of rural schools do you think that after a short time elementary science could be introduced, perhaps in a modified form, in all of them?—I think so.

8382. Most Rev. Dr. Walsh.—The children are also brought into contact with the experiments, even when they are not asked to conduct the experiments?—Oh, yes, the object may be passed around among the class.

8383. Captain Shaw.—Does not this particular course of object lessons fulfil all the necessary motives of an object lesson?—Certainly, I think so myself; but the difficulty is persuading Her Majesty's Inspectors to adopt that view.

8384. Here you have the object, and you ask the child all they can observe or learn about the object?—Yes, but we have got to supply another course in addition.

8385. From compulsion from without?—We don't wish to put any more subjects on if we can help it.

8386. You think that would be a more satisfactory object lesson than a lesson on a horse drawn from pictures?—If you have an object in front of a child it is far better for the child than any lesson on pictures or models.

8387. As regards elementary science teaching, would you think it necessary to have some system of supervision over the teachers to see that they are not leading it into wrong directions?—At first I think you ought until you have got the class of teachers that you think can do it.

8388. There is always a tendency on the part of teachers who don't know very much science to impart the latest thing they have heard or read of to the children?—That is one tendency we have to guard against.

8389. You have said that the less apparatus you had the better; it might be better expressed, the simpler the apparatus?—Yes, I mean the simpler and the fewer the apparatus the better · I don't want a lot of elaborate apparatus in schools, for it will not be used.

8390. You want sufficient apparatus of the simplest sort for whatever exercise is being done?—Quite so.

8391. If the children were not receiving any manual training in the fifth and sixth standards, would you still hold to the opinion that it was better to give them science instruction than any sort of manual training?—I could hardly say.

8392. In your former answer you considered the case of boys who were going through a course of woodwork afterwards?—I was considering children in 1, 2, 3, and 4.

8393. You had it in your mind that they would go to wood work in the after standards?—Quite so.

8394. But if they had not such an opportunity, do you think it would be preferable to have science teaching or some form of manual instruction, such as advanced kindergarten?—If you are going to take that science work practically, like practical chemistry or physics, I should be still inclined to science.

8395. I am thinking of children who leave school at the fifth standard?—It is a scarcely fair comparison; you are introducing a subject which is being done practically, and the other is not practical in standard 5.

8396. I only want an expression of opinion if it is not almost necessary that they should have both forms of training?—If you can get both by all means

8397. Professor Fitzgerald.—Then you think there is an important difference between the educational value of the manual training and of the science teaching?—In the lower standards I think there is. I think the science training is much better for the children.

8398. But you think they are of different educational value: for instance, has not cardboard work got a different educational value from elementary science lessons?—Yes, and I prefer both, but the answer I gave was, which would I prefer if I could only have one.

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8399. But each has an independent educational value?—Certainly.

8400. Do you think it would be possible in the country to introduce elementary science in the shape of collecting insects and plants, and so on, for object lessons, to encourage the children to make collections for themselves?—I am doubtful as to whether you could get the teacher interested.

8401. If you could get the teacher interested in it, could he do it?—You might do it, but I don't see that it would be any more advantage educationally than these object lessons.

8402. Mr. Struthers.—You would have to go with the children to help them to collect?—Yes.

8403. Professor Fitzgerald.—Children do collect things very often?—They do.

8404. Could not their collecting mania be organised to some extent by the assistance of the teacher?—I am doubtful about that: it might. I cannot pass an opinion on a thing I have never done myself.

8405. Do you think at the end of the day, if this manual training were put on as an extra hour, there would be a danger that the teacher would be too tired to go on with it after his other work?—I should prefer it at the beginning of the day; he has to be constantly on the move and watching each individual child.

8406. More so than in other kinds of lessons?—Yes, you see he is fagged out at the end of the day.

8407. Most Rev. Dr. Walsh.—Especially with us in Ireland where there is a prolonged school attendance?—Quite so.

8408. Professor Fitzgerald.—What are the subjects that are taken here as advanced kindergarten—clay-modelling?—Paper-folding, paper-cutting, and colouring, cardboard and wire-work.

8409. Is that with the brush?—No, with crayon chalks.

8410. That begins under the fourth standard?—That begins under the fourth, cardboard work and sticklaying.

8411. Is that taken outside the kindergarten as advanced kindergarten?—It is taken in standard 1.

8412. No brick-laying from plans and elevations?—No, we don't do that.

8413. Do you think that is a good thing?—I do; I wish we did it.

8414. Mr. Struthers.—You have some small country schools of fifty or sixty taught by women, not by men?—We have.

8415. You have one woman taking charge of the school and she teaches needlework?—Yes

8416. Her teaching of needlework would be very much parallel to a man teaching woodwork to the boys?—Certainly.

8417. Then she finds no difficulty in teaching needlework in a school where all these other subjects are going on?—I don't know that she does not find any difficulty.

8418. At all events she overcomes it?—I don't know that she does overcome it.

8419. She teaches needlework?—I don't know that she does; it won't be up to the level of the town needlework.

8420. Do you know the arrangements for teaching needlework?—The girls are set to do needlework, as a rule, given by specimens, and the teacher goes and teaches grammar or geography or drawing to another class of boys, whatever subject the girls are not taught, which used, in days gone by, to be English.

8421. Professor Fitzgerald.—Instead of teaching needlework, she allows the girls to teach themselves?—To some extent, necessarily.

8422. Mr. Struthers.—Children in schools are not necessarily being taught all the time by the teacher—you frequently set them to practice arithmetic from books?—Yes.

8423. Is there any difficulty in having the rest of the school doing arithmetic?—Throughout the week

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they take all the subjects alike; it is when the girls are doing needlework the boys take an extra subject—that now is drawing; and it is only taught at that time.

8424. But no such condition applies to Ireland—it would be quite possible to have the boys, or part of the school, engaged in silent work from books while the girls are receiving special instruction in needlework, or the boys special instruction in hand and eye training?—That would be quite possible.

8425. You have four class subjects in every class?—With object lessons added on.

8426. And recitation?—Yes.

8427. And you consider this great extension of class subjects is for the benefit of the pupils intellectually?—It is a difficult subject for me to answer; I think we have just about gone as far as we can possibly go.

8428. But so far, you don't think there have been any bad effects?—I have not noticed any.

8429. Up to a certain point it is desirable to have a variety of subjects?—Certainly.

8430. So you don't think the teaching of reading, writing, and arithmetic would necessarily be substantially improved if you cut off some of those subjects?—I don't think it would.

8431. The same argument would apply to your cutting off manual instruction in various forms—if you take that away you need not look for a substantial improvement on the work left?—Oh, no; we would be as we were before.

8432. You said that you must take these object lessons in addition to the course of science: why?—The Education Department——

8433. Professor FITZGERALD.—Would they not allow science lessons to be called object lessons?—No; they did for one or two years, but last year we were expected to give another object lesson.

8434. Mr. STRUTHERS.—What is the difference between object lessons and science lessons?—Science lessons we are paid for, as a class subject.

8435. Then that is the difference between the two?—It is the difference in a great many subjects in the English Code.

8436. With four class subjects taught, you have an ample supply of class subjects?—We have.

8437. Then why teach object lessons in addition?—The Code requires them.

8438. For instance, you need only teach two class subjects, then your third and fourth class subjects are optional—why not drop one of those and take object lessons instead?—Because the Liverpool School Board say we have got to teach these four.

8439. Then the difficulty arises with the Liverpool School Board and not with the Department?—In that particular case, but then the Department say we have to take object lessons, so between the two we have object lessons and four class subjects.

8440. You need not take the object lessons in addition to the four class subjects—it may be only in addition to two class subjects?—The Education Department want these object lessons.

8441. You could take these object lessons in place of one of the class subjects?—We could, as far as the Education Department is concerned.

8442. In recent years there has been a considerable increase in efficiency in the schools generally?—A marked increase; I think the increase is in the ability of the teachers more than that of the boys.

8443. Do you associate that in any way with the introduction of science teaching and manual instruction?—I associate it with the manual instruction with the special class of teachers; but in the lower standards I associate it largely with elementary science.

8444. Of course there are other causes which have helped?—Yes, the better training. Everything has tended in the same direction.

8445. There is a greater freedom of teaching?—Yes.

8446. Less rigid examination: you consider that an improvement?—Every one is of certain influence.

8447. I suppose you consider an individual examination in reading, writing, and arithmetic would be very bad for the development of intelligence?—I never liked it.

8448. But is it merely a question of liking, or of conviction as to its value?—It may be valuable in some cases.

8449. Professor FITZGERALD.—There is a statement that the object lessons may be either a series of object lessons there described or another, according to the wishes of the teacher. Perhaps the inspector would recognise your elementary science lesson as an object lesson within the Code?—He does; but our Board says "No; we have drawn up one of our own which we will have taught."

8450. Most Rev. Dr. WALSH.—In the Code, Article 15, there are two distinct things provided for,—elementary science is one, object lessons is another. We are told that object lessons, the second of these, becomes obligatory now?—Yes.

8451. Does not that seem to mean object lessons as distinct from elementary science?—That is what I have been saying.

8452. Therefore the Code makes this distinction?—Only that our Board took elementary science as one of the class subjects, which they need not have done.

8453. But you would not satisfy the requirements of the Code, as I understand it, by taking elementary science in place of these object lessons?—I think not.

8454. You must take object lessons that are not elementary science lessons?—Yes.

8455. For the Code distinguishes between elementary science and object lessons?—Certainly.

8456. And it says object lessons as distinct from elementary science are henceforward to be obligatory?—Yes.

8457. Allow me to read this to you from the Instructions to inspectors: "Object teaching should be distinguished from instruction in natural science. In object teaching the chief interest should centre in the object itself." All this seems to me to point to a class of things that are object lessons and that are not elementary science, which is mentioned in another part of the Code?—That is what we take it to mean.

Mr. William Nelson.

Mr. WILLIAM NELSON, Superintendent of Manual Instruction to the Manchester School Board, examined.

8458. CHAIRMAN.—I think you are the Superintendent of Manual Instruction to the Manchester School Board?—Yes.

8459. Can you tell us the number of schools in Manchester in which manual instruction is taught?—Eighteen elementary schools and five organised science schools.

8460. And besides that are there any classes?—There are two classes for the training of teachers.

8461. And you have put in a time-table?—Yes.

8462. Will you tell us the time at which the manual instruction is taken?—In the elementary schools the manual instruction is taken after school hours; in the organised science schools it is taken during school hours, and, of course, the time-table works in with the ordinary time-table. Some schools take it from 4.30 to 6.30 in the afternoon—the manual instruction, and some from 7 to 9.

8463. Is it compulsory on the boys to attend manual instruction?—It is quite voluntary; but practically becomes compulsory because the head master in the school insists on the boys going to some extent, although the Board don't make it compulsory.

8464. It is, *pro tanto*, a lengthening of the school hours?—Yes.

8465. How many lessons are given to each boy?—Only one of two hours every week.

8466. How are you provided for as regards a staff of teachers?—We have a staff of five regular teachers for the organised science schools, and two or three artizans are employed to assist in teaching and sharpening tools.

8467. In the elementary schools do the ordinary teachers assist in teaching subjects?—Yes.

8468. How are they qualified—I am speaking of science, first of all?—I have nothing to do with the teaching of science; my work is connected with manual instruction entirely.

8469. How are the teachers qualified for teaching manual instruction?—The general qualification is the City and Guilds' certificate—second year's certificate—but many of them have Sloyd certificates besides.

8470. Where do they get that from?—The examining body of the City and Guilds' Institute; then for the Sloyd certificate some have been to Naas, and others have token the course in England

8471. Where are the courses taken in England?—In a great many places. We have taught it ourselves in Manchester and trained all our own teachers.

8472. In some cases do the head masters teach manual instruction?—Yes, in two or three places.

8473. Have all the teachers of manual instruction been specially trained for the work by the superintendent of manual instruction?—Yes.

8474. That is, in addition to any training they get before they get their certificate?—Yes.

8475. Have you any artizan instructors?—Yes, I think we have three altogether.

8476. And you think they are as good for your purpose as trained teachers?—Not for the general purpose of manual instruction; they seem to answer very well as assistant teachers.

8477. What number of boys are taught by one teacher at a time?—Twenty, the maximum number.

8478. How are your rooms fitted?—The principal fitting up is based on a single bench; we have not double benches in Manchester. One boy has a bench to himself, and that bench is fitted with a bench set, and then supplementary tools are arranged round the room.

8479. Are those benches across the room or lengthways?—They are placed with regard to the light.

8480. Are the rooms you have in Manchester specially constructed for the purpose?—Many of them. In all the new schools we have a manual room built.

8481. Then do you put the light at the side of the room?—The light comes from the side facing the student.

8482. I see that your room is 32 feet by 24 feet: what I want to know is, is the light supplied by windows at the end or at the side of the room?—Generally supplied from two sides at least, sometimes three sides—adjacent sides. These dimensions here—32 feet by 24 feet—are only given as a standard on which to base calculations for the number of benches in rooms.

8483. What are the cost of fittings?—The cost of fitting a room with twenty benches and tools for twenty boys is £50.

8484. That is to say, you can get a bench and tools for about 50*s.* apiece?—Yes.

8485. If only one batch of boys used this room, you say the cost of fittings will be £2 10*s.*; but generally there are four to twelve batches in the room—in that case the cost would be reduced?—Yes, considerably. If you had twelve batches you would multiply the twenty by twelve, and divide.

8486. As regards the cost of timber, what is the average cost per scholar?—2*s.* a head.

8487. For drawing material?—3*d.*

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8488. Do you regard the scheme of manual instruction as educational, as opposed to being technical?—Yes, my lord. In connection with the work, the Manchester School Board have never insisted on any special scheme being worked to, and as superintendent I have had a free hand in working any scheme I like. It has always been opposed to technical work. There has been no direct technical bearing given to the work.

8489. Would you say your scheme, with regard to the series of models, is based on an adaptation of Sloyd teaching to the best traditions of English workshop practice?—Yes, my lord.

8490. Is class teaching only employed in drawing and demonstration lessons?—Yes.

8491. What is teaching at the bench?—Individual.

8492. But I understand the teacher teaches each boy separately and does not give demonstration lessons to the class?—Yes, there is no class teaching at the benches. Class teaching is done in a separate room in which drawing is done; demonstration of exercises is performed in a kind of demonstration theatre.

8493. Is any assistance given to the pupils beyond the demonstration of the proper methods of work?—Yes.

8494. Do you insist on a high standard of efficiency?—Yes.

8495. How do you obtain that?—By the systematic gradation of the course. The course commences in a very simple way, and leads up to more difficult work in a systematic manner.

8496. Where does the course begin?—In standard 5.

8497. The first thing you do is to teach him to use the plane?—Yes.

8498. And then work up from that?—Yes.

8499. When the models are made and approved, whose property are they?—The property of the scholars themselves.

8500. What is the method of instruction?—By drawing, demonstration, and individual bench work.

8501. Will you describe that a little more in detail?—In the first place the boy draws the model he has to make and afterwards a demonstration is given of the model by the teacher at the bench, and at the same time some account is given of the theory of the construction of tools and of the destruction and growth of timber, and the model is also exhibited at the same time to the boy so that he gets an intuitive idea of the thing he has to make.

8502. Does he make his drawing, seeing the model before him?—He generally has a large model before him, much larger than the size he has to make, and it is taken to pieces in front of him.

8503. He has to reduce his drawing?—He makes the drawing full size to the sheet.

8504. Would he make his drawing the same size as the model, or would he be guided by the size of his paper?—He would generally make it the same size, but if the model was larger than the paper he would make it to scale; but in order to show the model to a large class the model is made three or four times the size.

8505. Then in that case the boy has always to reduce the model to scale?—No.

8506. Suppose you want to draw this ink-bottle and made it four times the size for demonstration?—In the demonstration the teacher makes the model exactly the same size that he has to make; but in order to give the boy an idea of what he has to make, a large-sized model is made and exhibited to the class occasionally.

8507. Then you have two models?—Yes; but not in all cases. That does away with the necessity of giving each boy a model to work from.

8508. Captain SHAW.—But then you cannot draw from actual measurements of the model?—If the boy has to draw from actual measurements he has a separate model given to him to draw from.

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8509. As a matter of fact do you practice from actual measurements?—Not very much.

8510. CHAIRMAN.—When the model is before the boy, the teacher gives him an account of the construction of tools, and a description of the growth of timber?—Yes.

8511. Is the bench work, then, all done from the boy's own notes, and does the teacher merely correct him?—He only corrects bad methods of work.

8512. How is the course of instruction arranged?—In three years' courses: there are two schemes, one for elementary schools and another for science schools.

8513. Professor FITZGERALD.—What is the difference between the elementary course and the science course?—It is generally much easier than the science course, but in the first year it is very much the same, except that there are more models.

8514. The science course is for boys in the organised science school, and the other is for boys in the ordinary Board School?—Yes; in the elementary schools the average attendance reaches 33 in the year, and in the organised science schools it reaches up to 40 in the year.

8515. Are the boys in the organised science school older than the boys in the elementary school?—As a general rule, yes.

8516. Captain SHAW.—Have they not been through the ordinary standards as a rule?—Not many of them; it is not taken in all the schools, and the boys in the organised science schools in Manchester are generally drafted from the ordinary schools, and a great many come from voluntary schools, where manual instruction is not taught.

8517. CHAIRMAN.—Have you any observations to make on the advanced or third year's science course?—In connection with this third year's course, we have lately included two or three models connected with practical physics. An astatic galvanometer stand has been made this year, and has proved very interesting and instructive; probably there will be a further development of this. The Chief Inspector for the district has pointed out the advisability of working models connected with practical physics; of course, if that is carried out to an unlimited extent, it will destroy the logical sequence in the arrangement of models.

8518. Professor FITZGERALD.—Unless you can combine the two?—Yes, it is a very difficult matter to bring in models that will actually take the part of the sequence of the other models.

8519. Mr. STRUTHERS.—They would not make this special apparatus until they had gone through a further course?—No.

8520. So the logical sequence would not be broken until the pupil had reached an advanced point?—Yes.

8521. I think you said it is taught in 18 schools in Manchester; are there many in which it is not taught?—A great many; the difficulty has been that we have not had room to introduce it; whenever we have had room, we have introduced manual instruction. All the newer schools have had manual instruction rooms built in connection with them.

8522. Then you go on the principle of building a separate room?—Yes, in many cases it is in the building, and in other cases in the playground.

8523. You don't go in for the principle of centres?—We have only one centre.

8524. Do you have pupils of voluntary schools coming in?—No.

8525. Have you hand and eye training in the lower standards?—We have, but it is quite voluntary on the part of the teacher.

8526. Do you have any control of that part of the work?—Two years ago, when the question of varied occupation came up, about 250 teachers were trained under me for that work, but since the circular was withdrawn by the Department, the work stopped.

8527. So if it is left to the teachers without the interference of the Department or the School Board, they don't readily take up hand and eye training?—They don't; we run the full Code in Manchester, and the teachers find they have not room for it.

8528. Do you take four class subjects in Manchester?—I could not say.

8529. Your system there is based on the series of models at Nääs?—Yes.

8530. You said it was modified to suit the English workshop practice?—Yes.

8531. Could you say what the general nature of that modification is?—After my training in Sweden, and the opportunity I had of going through the Nääs handbook, I came to the conclusion that an English course of Sloyd, exactly identical with the Nääs course, could hardly be run, because, although the logical sequence and gradations of Nääs models was very perfect, it was not perfect from the point of view of drawing, and it was necessary to arrange a course both for drawing and the ordinary bench work that would run in logical sequence and be easy from the first.

8532. It is difficult to have a gradation of models according to difficulty, which will correspond with a gradation of models according to the difficulty of drawing purposes?—Yes, and I think you will find in Sweden no notice is taken of drawing; it has been taught at Nääs for the last two years, but very indifferently; in fact, it is almost impossible to teach the Nääs course as a course in drawing. It is probably the best course in woodwork for Swedish schools.

8533. It is in order to make the Nääs course an efficient course in drawing that you have remodelled it?—Yes.

8534. CHAIRMAN.—What do they actually do at Nääs?—It is a training college for teachers, and they merely make the models.

8535. Do they do the same sort of work they do in this country?—Much the same.

8536. Not from drawings?—They work from diagrams and from models.

8537. They have to work from scale?—They have to work from a drawing of some sort, or a model, but a model does not remain accurate very long. If you make a number of models identical with the series, they won't remain accurate to dimensions for many months: the wood will shrink and get damaged in many ways.

8538. Mr. STRUTHERS.—But as a matter of fact they are made from drawings at Nääs?—They are made from diagrams.

8539. And they are strictly enjoined to make the drawings of the actual dimensions?—Yes.

8540. Do you use the knife in your course?—Yes, as a preliminary, but we don't take it at the very first as they do in Sweden; we drop four or five of the first models.

8541. Do you teach the drawing yourself?—It is taught by the teachers; manual instructors teach everything connected with manual instruction in the science schools, but in many of the elementary schools the teachers find it a great advantage to take half an hour a week for drawing out of the school time, and then the actual bench work lasts only one and a-half hours, and they find the books and drawing paper are kept much cleaner by adopting this method.

8542. Do you have any preliminary exercises such as exercises in sawing or planing?—No. 3 is an exercise in sawing.

8543. But embodied in some object?—It is not embodied in a useful object.

8544. Do you have a special size of tools; it is sometimes said the ordinary workman's tools don't suit a boy's hands?—We have the ordinary size of tools.

8545. You don't find any difficulty in the boys using these?—No difficulty, the handle of the plane is a little less.

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8546. You have been to Sweden and through the course at Nääs; you were a distinguished student there, I understand. Then you have seen some of the Swedish rural schools?—Yes.

8547. There the teaching is done by the regular schoolmaster?—Yes.

8548. Do you remember when this manual instruction is given?—I have not any definite knowledge, but I think it is given after school hours, about five o'clock; they try to get daylight as much as possible.

8549. They have benches fitted in the ordinary school-room?—Yes, and in some cases benches that are hinged to the walls and drop down, and some that fit on to the school benches.

8550. So the same room is used both as a school-room and a manual instruction room?—In many cases

8551. It is the custom all through the rural districts that the manual instruction is carried on in the same room with the ordinary work and by the same teachers?—Yes, but in the towns it is different.

8552. Captain Shaw.—I think you said one of the times for teaching manual instruction was 7 to 9.30?—Seven to nine.

8553. Do they consider it desirable that children of the elementary schools should go out at that hour of the night for manual instruction?—They go to many things in Manchester besides manual instruction as late as that.

8554. As a general principle, do you think it is a good time to give manual instruction?—I spoke to a boy about not coming to manual instruction, and he told me he had attended five classes that week in the evenings.

8555. Then, on the question of lighting, is it not preferable they should do their manual work by daylight?—Yes, certainly, I should prefer to have it taught during the day.

8556. Then you said the head master in some instances took the manual instruction; in what class of school does the head master take it?—In the elementary school.

8557. In what class of elementary school—a large Board school?—A large Board school, No. 2, Ashton Old Road: the head master teaches, and in another large Board school, Johnson-street, the head master teaches manual instruction, and also the evening school.

8558. Mr. Strutherss.—It is not given in the regular hours, and does not interfere with his duties as head master?—It does not interfere, and is a great advantage

8559. Most Rev. Dr. Walsh.—It lengthens his hours of work?—Yes, but he finds it a great recreation: these men are enthusiasts, and have a splendid attendance.

8560. Captain Shaw.—Suppose it was a compulsory subject, would you consider it desirable the head master should teach it?—If it was compulsory during the day, I don't think you could do it.

8561. Do you think it desirable? Would it not give the head master an undue bias in one direction?—I have not an observation to base an opinion on.

8562. Do I understand you only use one side of each bench?—Yes.

8563. You have not two boys working opposite each other?—No.

8564. Is there an objection to having two boys working opposite each other?—Yes, I think so, personally. At first a few of the benches were double, and we found the tools got mixed up a good deal, the boys are facing one another, and that leads to some amount of disorder; if a boy makes a mistake, the other boy notices it, and it leads to talking.

8565. Professor Fitzgerald.—If there was a division between them?—If it was a high division it would prevent proper supervision.

8566. Captain Shaw.—What planes do you use?—An ordinary jack plane, both for trueing up and jacking, and a smoothing plane. We also keep a set of trueing planes for special use, but each boy has not a trueing plane; each boy has a jack plane.

8567. If you are not going in for technical education, is not one plane sufficient for them?—It probably would be sufficient, but you could not arrange such a comprehensive series of models on a hard and fast line as regards special tools. I think one plane could do all the work.

8568. If you take a jack plane you would hardly have a carpenter's jack plane, but a modified form of plane?—Somewhat shorter.

8569. But supposing a boy started at two o'clock in the afternoon with a jack plane, and had some very rough work towards the end of the afternoon, and he wanted to finish the work off, he could not finish it with that plane very well?—It is quite necessary to have a smoothing plane in addition.

8570. Was not the Nääs course drawn out with a view of giving instruction in schools where a large number of hours per week is devoted to manual work?—That is so.

8571. What is the average?—I believe the average in Sweden is four hours a week. In the large towns it is much larger. It is absolutely impossible in English schools at present with two hours a week to do a Nääs course in the boys' school course. When I was connected with an institution in Old Trafford, where we taught the subject for six hours a week, we had many boys who had gone through the whole Nääs models.

8572. Most of the Nääs models take several hours to complete?—They do in Sweden, but I don't think they do in England—we adopt quicker methods.

8573. Don't you lose the beauty of the training then?—No, I think Sloyd can be taught in England rather differently with advantage, *e.g.*, you need not do so much sand-papering. In Copenhagen, in a very large school where the head of the school was trained under Salomon, they use no sand-paper at all.

8574. I thought sand-paper was strictly prohibited except for the finishing of the model?—If you had a model like the Swedish scoop to make, you would probably spend a day in sand-papering

8575. Do you think that is advantageously spent?—Well, the boy gets a finished appearance to his model: an English series of models need not go into so many exercises and can avoid so many of these sand-paper models that are peculiarly Swedish in character.

8576. You commence with the pointed stick; that is not carried out with an English carpenter's tools?—No, the pointed part is finished with a knife.

8577. Professor Fitzgerald.—In Manchester is each school taught in its own school-rooms, or do they come from a number of schools to a local centre?—We only have one centre in Manchester and there are five schools attending to it; the other schools go to their own rooms.

8578. Which only receive the children from one school?—Yes. In some schools, of course, the room is full every night, like Johnson-street, so that there would not be room for any other children to come in; there are about 300 boys, and it is used for evening work.

8579. Could the system you are describing be taught in rural schools in the same way as the Nääs system?—I think so.

8580. Do you think it is of much importance to interest the boys by providing them with finished objects to make as models, rather than exercises?—Yes, in connection with the interest of the child it is of paramount importance.

8581. And you think it is important they should work in a number of different kinds of wood; I see here walnut, pine, bass-wood and beech?—Yes, but the best wood for manual instruction is ordinary yellow pine.

8582. But it is much more interesting to the child to make certain models with different kinds of wood; for instance, in making a round ruler, the boy prefers

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to make it of something hard; do you think it important that they should work with different kind of materials?—Yes.

8583. Is it only for boys?—Yes.

8584. Does each boy go at his own rate or do you require them to finish up their objects at once?—No, he goes at his own rate.

8585. How does the drawing get done at the school?—They always draw in advance of their work, and it takes half an hour a week for drawing. In two hours you can do as much drawing as will keep you working for three weeks after that.

8586. Do you find, as a matter of fact, the children get sufficient experience in the use of tools to make them work these things accurately?—Yes. I may point out to the Commission that if all this time is added up, if a boy works for forty-six weeks in the year, and puts in two hours a week at manual instruction, he has not much more time than an ordinary apprentice has in one week at the bench, but still, I think, any of the boys who had gone through a manual instruction course after a year's course would do better work than an apprentice who had been 12 months at the trade.

8587. An apprentice would do 92 hours a week?—He would not do so much as that, well, say a fortnight, but even then there is a tremendous disparity between that time and a year's work at the bench.

8588. Mr. REDINGTON.—Have you calculated the annual cost per boy of this woodwork instruction, the interest on the buildings, the interest on the fittings and the annual cost of the materials?—No, I have not.

8589. Would you be able to obtain for us that information?—Yes.

8590. The cost, and perhaps also the amount of the grant from the Science and Art Department?—Yes.

8591. Speaking generally do you think that the net cost to the ratepayers on this department of school work, is great?—My calculation for that has been that the teaching which costs us 5*s.* for two hours, for evening work, if the boys attend regularly, is just paid for by the Department's grant or it almost covers it.

8591A. It covers the cost of the materials?—No, covers the cost of the teaching, and then the material comes to 2*s.* 3*d.* a head per year.

8592 Then there is the interest on the buildings and fittings?—Yes, I will obtain that for you.

8593. Most Rev. Dr. WALSH.—Where did you get your teachers when you set about introducing this manual instruction?—For the first three years after my engagement under the Manchester School Board, my work was chiefly devoted to training teachers.

8594. What class of people did you take in hand for this purpose?—The elementary school teachers.

8595. You consider the elementary school teacher makes a much better instructor than the artizan?—Yes.

8596. At present how are the teachers trained?—At present we have two classes for teachers weekly, and some of the teachers who were trained at the very first, five years ago, still carry on their training.

8597. And who teaches these classes?—I have charge of them, with three assistants.

8598. And probably those whom you trained at the beginning are now, some of them, able to take part in the training?—Some of them are.

8599. What is generally thought in Manchester of this kind of school work, by persons who take an interest in this kind of education?—The work in Manchester has been very popular both amongst the parents and teachers, and with the children it has been entirely voluntary ,as I said before, and we have had no difficulty in getting good attendances; the attendance, of course, is dependent on the individuality of the teacher to a great extent, but generally the men we have picked have been men who had some enthusiasm for the work. We have a good many to pick from; we have trained some hundreds, and have only thirty-six teachers employed.

8600. How many hours a week do you give to this manual instruction?—Some take it for two hours and some for two hours and a-half.

8601. You have never aimed at making time for this within the ordinary school time, as is done in Birmingham and London, and here?—I think it has been considered by the Board.

8602. You never thought of giving less time either to religious instruction or to any other subject?—No; but manual instruction has not suffered from being taught out of school hours, as far as can be judged from the results of the Science and Art Department.

8603. I think you mentioned that it is the head teacher of the school that takes this as an addition to his ordinary work?—In two or three cases only.

8604. He is paid for it?—Yes.

8605. And that, you think, is substantially covered by the grants given by the Department?—If the attendance is good it is substantially covered.

8606. Is the distinction between elementary manual instruction and technical instruction generally understood in Manchester?—I think so. The Board understands it very well, and I think the public understands it to some extent, although not at all clearly. The thing is too young.

8607. Don't you think that having a subject like this taught outside of school hours is calculated to create the idea that it is not really part of the work of a school?—I am afraid so. Personally, I don't approve of its being taught outside of school hours.

8608. You think that if it were taught within the school hours, the proper educational view of the work would be better kept before the mind of the public?—Yes; it would be much better to take it in the school hours.

8609. To what extent is drawing taught throughout the school course in Manchester?—They do ordinary drawing for the Department; but I could not tell you exactly the time given for it.

8610. So that by the time they come up to the woodworking in the fifth standard they are pretty expert?—We find we have to teach drawing over again for our purposes. To make a drawing for a model object is very different from making an ordinary drawing, that is drawing for itself.

8611. Have they drawn objects at all up to that?—Yes; simple objects and dimensions.

8612. Do they understand anything about perspective?—No; I think not.

8613. How do they draw an object, a cube for instance?—They could draw the object from measurement; I think in standard 3 they measure; but I am out of my sphere now, for I have nothing to do with ordinary drawing.

8614. But as to any working drawings, plans, and elevations, they do not begin at that branch of the work until they come to the fifth standard?—Yes.

8615. You think they are well able in the drawing to keep ahead of the woodwork?—Yes.

8616. So that even the boys who go faster than the others in woodwork are not ahead of their own drawings?—There are always boys of that class, and they are allowed to draw specially.

8617. I suppose it is a principle that everything must be drawn by the boys before it is made?—Yes.

8618. You aim at getting the boys to make some apparatus for the teaching of science?—Yes; but that is in the third year of the advanced science course. It has interfered to some extent this year, because this is the first year we have taken it; but next year it will be embodied in the course properly, as it is in name now.

8619. I suppose you will try to have it brought in as part of the regular system of gradation?—Yes; but of course the objects to be made for the practical physics will vary, and in connection with the manual instruction it will be difficult to keep pace with every variation.

8620. When they make their drawings, to what extent do they attend to the actual measurement

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of the object; do they first put things down roughly and then make the measurements and make a drawing to scale?—In some cases they make a rough sketch and then make a completed object; but generally they work from the blackboard drawing made by the teacher.

8621. You do not make it part of your system that they should draw from the object, by taking plans and elevation, first making a rough drawing, and then taking the measurements and drawing accurately to scale for themselves, without copying any other person's drawing?—We have not done that.

8622. Don't you think it is a good thing?—It is, and our children have that set to them by her Majesty's inspector, and have done it sufficiently well to get excellent.

8623. Just one or two questions about the Swedish schools. The standards in the Swedish course, I suppose, more or less correspond with the standards here in England?—I know nothing of the ordinary education in Swedish schools. I have seen woodwork there.

8624. Did it strike you that it was confined to the more grown children?—I think the theory in Sweden is that the child should commence ordinary manual instruction at the age of ten years, not at any special standard.

8625. That would about correspond with your 4th standard?—Yes, but sometimes, in our 4th standard, we have boys very much too weak for manual instruction.

8626. In Manchester this manual instruction is confined to boys?—Yes.

8627. In Sweden, is it not taught to girls?—Some, not many; but I believe the originator of the Sloyd idea does not believe in girls doing Sloyd.

8628. You spoke of the use of sandpaper, is it not a principle of Swedish Sloyd that the utmost possible degree of accuracy should first be attained by the use of tools before sand-paper is allowed?—Yes, the models are all examined before they are sandpapered.

8629. By the "model," you mean the object made by the child?—Yes.

8630. And unless a sufficient degree of accuracy has been attained, the sandpaper is not allowed?—Is not allowed, and then it is used very sparingly, as far as quantity goes.

8631. If it is to be used at all, there would be a greater need for using it in a system such as the Swedish, which works very much more with curved surfaces than your woodwork in England?—Yes.

8632. To a large extent you in England keep clear of curved surfaces?—We have curved surfaces, but less than in Sweden, because we cannot work such a comprehensive series of models.

8633. You try as far as possible, I hope, to keep from using sand-paper?—We don't use much sandpaper in Manchester.

8634. Chairman.—There is one question I should like to ask, and that is—from your own knowledge, is this system of manual instruction spreading in the rural schools in Lancashire?—Yes, I think it is. I think they are taking it up, and the teachers show a great desire to take it up, a great many of them are already trained for it.

8635. And any initial difficulties are being gradually overcome as regards the comparatively small numbers in schools, and the distances children live from schools?—I think the difficulty is the provision of the room and the fitting up.

8636. Are they providing separate rooms?—I don't think they are at present in the small rural schools, except under the County Council.

8637. In the small rural schools in this country would you have a second room that would be used for this purpose?—Yes, if possible; but it can easily be worked in an ordinary class-room, because it is very clean, and suitable arrangements can be made for fitting up an ordinary room.

8638. Suppose you were to carry the idea to Ireland, where there is a rural school with only one room, do you think it would be possible, by clearing away the desks, or putting extra fittings on the desks, to carry on a class outside school hours?—Yes, I think light bench tops could be made to fit over the top of other desks, and let 4 boys work around, but of course, it is not so good as a bench, but it would do.

8639. Mr. Struthers.—You have trained teachers teaching this woodwork?—Yes.

8640. Are these teachers also teaching classes during the day?—Yes.

8641. You have no teachers specially devoted to manual instruction and nothing else?—Not in elementary schools.

8642. Professor Fitzgerald.—Is elementary science taught in Manchester schools?—Yes.

8643. Universally?—I think so.

8644. Captain Shaw.—If you use the tools used in English trades, must you not have a more or less firm basis to work on, and be able to hold the material?—You would have to have a firm basis for any kind of tools.

8645. Do you think you can get it by these substitutes—putting something on the top of a desk?—If the benches are firmly made, it only requires a good principle of fixing the top on to make it firm.

8646. Chairman.—Are the benches fixed to the floor in manual schools?—Yes.

8647. I suppose an ordinary school desk would not be fixed to the floor?—It would not, because it is much heavier; it is made of iron, and I don't think any kind of planing would move an ordinary desk, and planing would be the only thing likely to move it.

Chairman.—Before the Commission breaks up at Liverpool, they desire me to express their most cordial thanks to the School Board of Liverpool for the great courtesy which they have shown and the great assistance they have afforded us in our inquiries; and also to thank them for placing their offices at our disposal, and their officers for the very kind manner in which they have given us every assistance in their power during the last four days.

Mr. Oulton.—My Lord, if I may be permitted, in the absence of the Chairman of the Board, to express on behalf of our colleagues our appreciation of the way in which you have recognised what was a very earnest desire on our part to extend to this Commission every facility that was in our power, I do so with the greatest possible pleasure. It is a source of satisfaction to us if to any extent we have accomplished the object we had in view. We can only say that we recognise in this Commission, alike in its object and the honourable character of its individual members, an opportunity which called upon us to do all we could to further it in its important work.

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EIGHTEENTH PUBLIC SITTING.—FRIDAY, APRIL 2nd, 1897,

AT 11 O'CLOCK, A.M.

At the Grand Jury Room, The Courts, Carlisle.

Present:—The Right Hon. the EARL OF BELMORE, G.C.M.G., in the Chair; The Right Hon. C. T. REDINGTON, M.A.; The Right Rev. Monsignor MOLLOY, D.D., D.SC.; Rev. HAMILTON WILSON, D.D.; Professor G. F. FITZGERALD, F.T.C.D.; Captain T. B. SHAW, and J. STRUTHERS, Esq., B.A.;

with J. D. DALY, Esq., M.A., Secretary.

Mr. C. Courtenay Hodgson.

Mr. C. COURTENAY HODGSON, Organising Secretary to the Cumberland County Council, examined.

8648. CHAIRMAN.—You are the Organising Secretary to the Cumberland County Council?—I am, my lord.

8649. Will you describe to us the condition of the County as to manual and practical instruction in 1891, when the County Council first took up the work of practical education?—Well, my lord, I can best describe, perhaps, the condition of the County at that time by saying that practically there was no technical or manual instruction of any kind within the County with the exception of the work that was just begun at Keswick, which probably some members of the Commission know something about. It has since then developed considerably, but at that time it was merely in its infancy.

8650. Is that technical work?—Manual work; now the Keswick School of Industrial Art.

8651. Is it a technical school or is it connected with primary education?—It is not connected with primary education, it is a purely technical school. In the rest of the County there was practically no technical or manual instruction of any kind.

8652. And of course then you had no qualified teachers?—We had no qualified teachers; that was the great difficulty the County Council first met with in endeavouring to organise a system of technical instruction, and that want was the first work which was put before them to supply.

6653. When they set about supplying the want did they confine themselves to technical instruction strictly so-called, by which, although there seems to be a difference of opinion as to the exact meaning of the word, we here understand as the teaching of trades; or did they also extend it to hand and eye training, which we know as manual instruction?—Yes, they included hand and eye training. In fact the County Council through their committee rather developed that side of it more than the other considering that that was the more purely educational side of manual training, and consequently they felt it was more their duty to devote themselves to that than that which you describe as the teaching of trades.

8654. Can you tell us what steps were taken to supply the want of qualified teachers?—Yes; the first subject to which the Council turned their attention was agriculture, Cumberland being largely an agriculture. County as of course you know. The Council secured the services of Dr. Webb, who at that time was principal of the Aspatria Agricultural College, and under him there were organised classes for elementary school teachers. The idea of the committee at that time was to introduce the teaching of agriculture into elementary schools in the County and with that object, classes were formed at one or two centres in the County on Saturday, which was the vacant day for elementary teachers, under Dr. Webb. Teachers were offered inducements to attend these classes by portions of their railway fare and expenses being paid by the Council. These classes were conducted upon the syllabus of the Department of Science and Art.

8655. Was this teaching purely the theory of agriculture or were there any school plots in which there was practical work carried on?—There was no practical work in connection with it: it was impossible because they were held on Saturdays and conducted here at Carlisle and at Whitehaven.

8656. Were those classes continued?—They were dropped in a couple of years.

8657. Why were they dropped?—The committee had occasion rather to change their views on the subject, and came to the conclusion after two years' experience, although a large number of teachers obtained the certificates of the Science and Art Department, qualifying them to teach agriculture, yet, although that so far was good, it was felt that the introduction of the teaching of agriculture into the elementary schools was impossible in any beneficial way without some practical work in connection with it, which the teachers—although they might have obtained a certificate—were not qualified to give; and, consequently the committee came to the conclusion that the elementary teacher, even though trained theoretically, was not the proper instrument for teaching agriculture.

8658. Have the County Council in their mind any resumption of the teaching of agriculture, putting it on the basis of practical instruction?—Yes; recently the County Council have endeavoured by the establishment of a farm school near Penrith, to conduct the teaching of agriculture in a more practical manner, and in what they think really is the proper way, that is, to take the children or youths after they have had their elementary school education, and not to endeavour to combine the teaching of agriculture with the elementary school education.

8659. How will they manage that; will there be a sort of college where the pupils can live together?—The school farm, which I hope the Commission will see before they leave Cumberland, is meant to be a school where a course of instruction will be given, combined with residence in the house of the manager, to a limited number of boarders. They will be selected by the committee from persons engaged in farming pursuits in the County, and will be taken there for longer or shorter terms of instruction. The idea is, of course, that they should reside there for a certain time under the control of the manager and staff.

8660. I suppose this farm is something on the same footing as the one they have at Glasnevin, near Dublin; do you know it?—I have heard of it.

8661. Professor FITZGERALD.—Do both boys and girls go there?—Only boys in the winter. The farm was only established last winter. The proposal is to take young women in the summer months when the boys cannot be spared from the farm, to learn dairy work.

8662. CHAIRMAN.—We hope to see that farm to-morrow, and therefore I will pass on and ask you what the County Council has substituted for these

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classes in agriculture?—After the classes in agriculture were dropped, or even while they were still continuing, the County Council instituted similar classes for teachers in other subjects; the subjects taken were such as hygiene and sanitation, physiology, also chemistry. These classes were conducted in the same way, that is, they were conducted under the syllabus of the Science and Art Department, and we held them at certain centres up and down the County. A further important development of the County Council's work in the training of teachers was the establishment of classes for instruction in drawing, which were held at a large number of centres up and down the County, with the object of enabling teachers to obtain their full certificates as teachers of drawing, which was in a very backward state in the County.

8663. Does it ever happen in this County, as we have heard it does in Ireland, that a teacher may obtain his certificate in drawing, and yet be quite unfit to teach drawing, because, although he has obtained the certificate, he has not taught drawing, possibly for a long period of years, and has forgotten all about it?—That, no doubt, does occur in certain cases, but not to any great extent.

8664. Not so generally as we have heard it does in Ireland?—No; it is rather the other way, there were a large number of teachers who were teaching drawing but who had no qualification. Of course, you know, the Education Department has made drawing compulsory in all elementary schools; the result was, that the teachers were obliged to teach drawing whether they could or not, and that was one of the strong reasons why my committee felt this should not go on.

8665. How could a teacher be compelled to teach drawing if he had never been taught?—He simply had to do it the best he could.

8666. He would get some sort of training at his own expense, I suppose?—Yes, and in certain cases the Department would dispense with drawing; but that was becoming more and more rare, and they used to put compulsion on the schools that drawing should be taught, and the consequence was, the teachers were very anxious to qualify, as you know the teacher in a country school has very small facilities at his disposal for qualifying himself, and by establishing centres on Saturdays, these teachers were enabled to attend at small expense, and obtain the proper qualification for teaching drawing.

8667. With regard to manual training and woodwork, what has been done in Cumberland?—In 1891 to 1893 we first commenced some manual training. We engaged a teacher on our staff who had been through a course of instruction at Leipzig, and was very qualified to teach, and also had practical skill, which are, of course, the two qualities you want; the classes were formed under the syllabus of the City and Guilds of London Institute; they have a special syllabus for manual training for teachers. These classes were established on Saturdays, in the same way as the Science and Art classes at Carlisle and Whitehaven. The teachers were invited to attend, and a certain number did—not very many—but a fair number attended, and having passed through the course, which probably is familiar to members of the Commission, they sat for their examination, and some nine passed in the first year.

8668. What has been the practical result in the way of spreading the teaching of manual training through the county?—It has increased considerably from year to year since that time, and I think is still increasing. There are difficulties of course in connection with elementary schools; a teacher is very dependent upon his school board or school managers. If the school board or school managers will not provide the necessary appliances in the school, it does not matter whether the teacher is qualified or not, he cannot give the instruction, and I am sorry to say that, so far we have not been able to any great extent to induce the elementary school authorities to see the value of this work and take it up. In some cases they have, but as a rule they rather leave the thing entirely to the teacher.

8669. In these schools to which you allude in your answer, is the instruction given in what you may call purely rural schools, or in schools in places more or less of an urban character?—In both. A class was formed in Carlisle under the School Board, and also in certain rural centres.

8670. We are mostly interested in rural centres. Could you tell me, following up my previous question, what has been done in rural schools in the way of providing accommodation room for the teaching of manual work, and also in the way of equipment; and further, what has been the expense of doing this?—As I said, that is very much dependent on the individual school managers.

8671. Have you any instance by which you could illustrate this?—One school I have in my mind is in a small country town, and in that case the school managers did equip a small class room.

8672. They did not build an iron room or anything of that sort?—No, it was an addition to the school; I think it had been existing before, and they equipped it with benches, and the instruction was given under a master who had been trained under us, but it was not altogether a success; the place was too small for the teacher to do justice to the work.

8673. Do you remember what size the classes were?—The classes numbered about twelve.

8674. Could you give me roughly the size of the room that would accommodate twelve; was it something like 25 x 15?—No, there really was not accommodation for a dozen; I don't think more than six or eight have been there; there were two large benches there. With boys at each bench, you can have more than with grown up people, because they don't want the same reach, and I have seen benches provided with four boys in a row. I think myself a bench for two is better in which they can work at opposite corners.

8675. We have seen in Liverpool the plan of having four boys at a bench, two on each side, with the tools in the middle?—It is a question of expense and also the age of the boys. In each class we have usually tried to restrict them to two.

8676. I think you said at first that you got teachers trained under the City and Guilds?—Yes; they are trained here under the City and Guilds syllabus, which syllabus is restricted to elementary school teachers.

8677. Can you tell us with reference to the classes formed in various centres, how the pecuniary aid is obtained for carrying them on?—They are paid under a system of capitation grants by the County Council. We pay, roughly speaking, 10s. per head.

8678. Professor FITZGERALD.—In the elementary schools?—No; we are not allowed to assist in the elementary schools, but I am speaking of evening classes in connection with evening continuation schools or separate classes.

8679. CHAIRMAN.—Do those schools only teach teachers?—They don't teach teachers—they teach boys and young men.

8680. And apprentices may come in in the evening?—Yes.

8681. Can you tell us the subjects taught for the last three years in manual classes?—We commenced our manual work practically in 1892-1893. In that year we had thirteen teachers who had been trained and were examined by the City and Guilds, of whom nine passed. The following year the work increased, and we had classes at three centres—Whitehaven, Carlisle, and Penrith—which were attended by about eighty teachers, of whom sixty sat for examination—fifty-one the first year, and nine who had taken the first year now took the second year or final examination; thirty-one of these passed the examination. The following year, 1894-95,

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we again had classes under the same scheme at Carlisle and Whitehaven, at two centres. Those were attended by rather a smaller number than the year before, and there was a slight decline of interest, owing, I think, to the fact that the elementary teachers who had been through the work and trained, found that they were not able to induce their elementary school managers to allow them to take up the work.

8682. You think that the difficulty really is more with the managers than with the teachers?—Yes, and the School Boards.

8683. On what ground do they object; do they think it is encroaching too much on the time for literary work?—I think it is almost purely a question of expense. The schools have not as a rule any accommodation for manual work, and they simply object to provide it.

8684. They don't feel inclined to go to the expense of providing anything extra?—No.

8685. Could you give us any observations as to the want of some National organization for inspection and examination of manual classes, and also with regard to the subject of the dual control of education by the Education Department and the Department of Science and Art, and so on?—It is a want that is very much felt, not only here but all over the country. With regard to manual work as a whole there is no recognised authority to inspect or to examine these classes that may be formed. The County Councils are endeavouring to do what they can, but each County Council may have a different scheme in its county, and it is very much felt that some central authority, which would have the power to inspect the classes and draw up some uniform scheme both for teaching and also for the qualification of teachers, is very much wanted if it could be established. At present, as far as the elementary schools are concerned, the work is partly under the control of the Education Department and partly under the control of the Department of Science and Art, which does not work satisfactorily.

8686. Where is the line drawn between the work of these two Departments?—It is rather difficult to say. We have had several cases where the two rather clashed.

8687. In what way would they clash; can you illustrate it?—Take one subject, cardboard modelling, which has been introduced lately into some elementary schools, and in which we have had classes in consequence to train the teachers; we had classes for a couple of years training the teachers in cardboard work, making the articles in cardboard.

8688. We saw a teachers' class in Birmingham where they did it very elaborately?—This work was introduced into the evening schools, but this last year the Education Department have declared against this, and although a circular was issued from the Department of Science and Art about eighteen months ago, which spoke favourably of cardboard work, and encouraged the work of it in schools, in one evening school which has come under my notice this year, where the master was taking cardboard work, the Education Department have declined to recognise it as a subject, and have stated that "it has no educational value."

8689. Does the inspector for the Education Department visit the same school with regard to this subject of cardboard as the inspector of the Science and Art Department?—They both visit the same school, but not in the same subject; but the subject would come under the notice of the inspector of the Education Department, because the teacher has to submit his time table for approval, and that includes all subjects.

8690. I think you consider that there is a want of recognised qualification for teachers of such classes?—There is very great want.

8691. Are there objections to training by means of holiday or summer courses?—They have been adopted as a sort of makeshift, but it is very easy to conceive that a holiday course very often results in one of two things—either it is purely a holiday and very little work is done, or else it becomes a very great strain upon the teachers, who have been working all the year; and if their month's holiday is to be devoted to really hard work as well, the result is that they frequently break down altogether. We have had instances of that in connection with our own work, where we have assisted teachers to attend a course, as we did at the Durham College of Science, and one or two had to leave the course before it was finished.

8692. Are the examinations of the City and Guilds of London Institute confined to elementary teachers?—They are entirely at present, and that is not satisfactory; at present they are the best examinations for manual training, and it certainly is a misfortune that they are restricted to teachers in elementary schools; because, although teachers in elementary schools are of course teachers, still they are not the only teachers, and there does not appear to be any reason why these examinations should not be open to others who wish to qualify themselves to teach.

8693. I suppose there are many teachers of manual work who are not on the regular staff of the elementary schools?—Very often the best teachers are not, and they are unable now to obtain any recognised qualification. There are various, more or less voluntary, bodies which examine and give certificates, but there is nothing of national importance or recognition that I am aware of.

8694. How can the difficulties in the way of an open examination be got rid of?—I think the object of the City and Guilds Institute in restricting their examination to elementary teachers is that they consider a man must be trained in teaching as well as practical manual work; and of course if they were to throw their examination open they would have to have as part of the examination not only instruction in woodwork, but also in teaching it, because a man may be a very good carpenter or carver and be quite unable to teach. By restricting it to the voluntary teachers they assume that all those who sit for the examination are already trained as teachers. I think that might be got over by having an additional training in the theory and practice of teaching

8695. What subjects of manual training are not covered by the City and Guilds of London programme?—A very large number; practically they only take woodwork and metal work; they don't take any subjects such as cardboard or modelling in clay or repoussé work or brass work.

8696. What metal work do they take?—We only had one class under them; they take what might be almost called smith's work, which is not adapted for teaching educationally.

8697. Do you think with regard to instruction in agriculture that the experience is not favourable to instruction in elementary schools under the present elementary school Code, but that it would be preferable to establish farm schools for that purpose only?—That is my opinion; the chief reason for that is the present early age at which children leave elementary schools. It is impossible to add to the present subjects, with any advantage, agriculture.

8698. And probably they would be at a more suitable age for learning agriculture when they have left school?—Certainly.

8699. And would you think that there would be the advantage in a farm school that they would see the work carried on?—They would have the practical work and would be learning to be farmers.

8700. Can you give us some particulars with regard to the Joint Farm School established by Cumberland and Westmorland?—I think you have already had a prospectus of the school. The school has only recently been established, this is the first year; this is the one you are going to see, and therefore, perhaps, I need not go more fully into it.

8701. Will you give us a slight outline in order to have it on the notes?—The object of the school is to provide training for youths of the age of sixteen and upwards who are at present engaged in farm work. What the committee wish to do is to give these young men or lads, who see already the practical side of farming constantly in their daily work, to give them an insight into the scientific principles which underlie the practice, so that they can carry on their work in a more intelligent manner than hitherto. Then with regard to the young women, the object is to introduce into the farms the best and most improved system of butter-making and cheese making. The present practice leaves very much to be desired in that respect.

8702. I see in this prospectus that the fee for resident pupils is 10s. a week?—If they belong to Westmorland or Cumberland, and £1 for pupils from other places.

8703. Are the pupils expected to pay the fee out of their own resources?—Practically it is paid for them if their circumstances are such that the committee think it would be a hardship for them to pay it; the Committee of the County Council give a certain number of free places.

8704. How many weeks do they remain there?—From the close of farm operations in November until they are wanted again on the farms; in March they remain at Newton Rigg at the farm.

8705. They don't remain there in the summer?—No, they are required at their own farms.

8706. What goes on in the summer?—The young women are trained, they take the butter-making and dairying work from April to October.

8707. Then there are some day pupils?—That is simply provided for those in the immediate neighbourhood who may be able to attend during the day without boarding.

CHAIRMAN.—Perhaps you would hand in the course of instruction, and it can go in the appendix, beginning at page 3 to the end.

8708. Mr. REDINGTON.—What farm operations do these students see during the winter except the ploughing of the land?—They do not see a great deal of course in the winter, there are not many farm operations to be done; but they see quite enough of the practical farm operations on their own farms all the year round, and the object of the course during the winter at the farm school is to give them the theoretical instruction which they will be able to put into practice on their return to their farms.

8709. But if it is merely theoretical instruction which is given on this farm could they not get that in a rural school?—Well, there are a certain amount of farm operations; there is the tending and feeding of stock which is a very important part.

8710. CHAIRMAN.—There is the ploughing of the land and the sowing of wheat?—Yes, the ploughing; there is very little wheat sown at all; the ploughing is done in February or early March.

8711. Mr. STRUTHERS.—Do the pupils do the ploughing?—They assist.

8712. Mr. REDINGTON.—How is the farm carried on in the summer—are there regular farm labourers employed?—Yes, there are farm labourers all the year round, and there is a practical working manager, Mr. Lawrence, and he has a staff under him.

8713. What would you think of keeping students there the whole year round?—We may develop in that direction, but the difficulty is that they cannot be spared very often; these lads are wanted on their own farms—they are all farmers' sons or labourers.

8714. If this education is appreciated, would not a farmer be willing to pay a reasonable fee for the year's instruction?—Some might be.

8715. Or there might be a certain number of free places?—We do give free places now.

8716. Would not the instruction be much more practical if the students saw all the operations of the farm carried out?—Yes.

8717. How long does the dairy class for young women last?—Six weeks each course.

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8718. Is there a series of courses?—Yes, from April to October.

8719. When agriculture was taught at some centres, how many centres were there?—Three: Carlisle, an honours class at Aspatria, and Whitehaven.

8720. When were the lessons given?—On Saturdays.

8721. Mr. STRUTHERS.—These are for teachers only?—Yes. We had teachers from all parts of the county, because we paid their railway fares.

8722. Mr. REDINGTON.—Could they get back in the evenings?—Oh, yes; we had a very large number, over 100 in agriculture alone.

8723. What was the difficulty then of introducing agricultural teaching into the elementary schools—there was no additional cost?—No; although they had acquired a theoretical knowledge of agriculture by attending these classes, they knew nothing about the practical work of agriculture, and the boys whom they endeavoured to teach knew a great deal more about it than they did.

8724. I thought you told me that as the boys knew the practical part of the work, they went to Penrith to learn the theory of agriculture; here you have elementary teachers who are able to give that theoretical instruction?—Yes; but the elementary teachers insist on trying to teach the practical work.

Captain SHAW.—I think we might distinguish between book work and theoretical teaching.

8725. Mr. REDINGTON.—Even if a practical knowledge is not acquired, would there not be considerable advantage in teaching these pupils theoretical agriculture even though it is taught out of books?—I don't think so; although the instruction is theoretical, the man who gives the instruction ought to have the practical knowledge for the purpose of application. There is very great difference between instruction given by a man who is skilled both in practice and theory and instruction given, although it may be only theoretical, by a man who only knows the book side of it.

8726. What would your view be of the best way of teaching agriculture in rural schools?—I don't think under the present Code agriculture can be taught with advantage in elementary schools at all.

8727. If you leave out of consideration the present Code?—If I had power to raise the school age to thirteen or fourteen, I might.

8728. How would you teach it?—I would have peripatetic instruction by practical teachers.

8729. Would you have an experimental plot at every school?—Yes; I think that would be necessary, or there should be a certain number of plots that the pupils could go to.

8730. You would combine theoretical teaching with work by the pupils on the experimental plot?—Yes.

8731. If there was no possibility of having such a plot, would you think the theoretical instruction quite valueless?—I should think so.

8732. Then there is no chance of developing agricultural instruction unless the managers add experimental plots to their school ground?—Yes; and even with an experimental plot I don't see how a really satisfactory agricultural training could be given. You could not have the ordinary farming operations in stock and so on—it would be more of a horticultural nature.

8733. CHAIRMAN.—You could not have the feeding and tending of cattle; but could you not instruct them in the course? We are making an examination with a view of adapting things in Ireland; there are a great many farms in Ireland which are very small; we have had evidence that with five or six acres a course of tillage might be carried out?—That would be largely spade tillage.

8734. Mr. REDINGTON.—I was not talking of so large a plot as that, but of an experimental plot of half an acre, you admit horticulture could be taught?—Certainly, but that is a different thing.

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8735. That would be of great use: you include in that the cultivation of all kinds of vegetables grown by a small farmer or labourer?—Yes, I think that might be much more easily adapted to teaching in elementary schools provided the school age was raised.

8736. You don't think very small boys ought to be taught it?—I don't think they have time; they mostly leave school at ten or eleven years old.

8737. Could not some of the subjects be left out or less time given to them?—I should be rather inclined to say that as those boys after they have left that school practically have no more book learning for the rest of their lives, it is inadvisable to take for manual work any part of the very meagre time they now have.

8738. Then your argument is against the introduction of manual work as well as agriculture?—By manual work I mean mere outdoor work: I do not mean such manual work as could be made educational: I am not referring to hand and eye training.

8739. If you criticise the introduction of agriculture on the ground that there is no time for it, would not the same criticism apply to the introduction of woodwork?—It does no doubt, but the woodwork can be made much more educational than the other work.

8740. Can you not teach botany, geology, and other subjects by means of the plot attached to the school?—Not to children of that age; I should doubt it.

8741. Professor Fitzgerald.—Have you considered the recently issued French syllabus of training for elementary schools, something like experimental botany leading up towards agriculture, growing plants in pots, and studying the properties of air and water?—I have not seen that.

8742. Mr. Radington.—Do I understand that your remedy is to raise the age for compulsory attendance in schools?—If these extra subjects are to be introduced, certainly.

8743. If that were not done agriculture never could be taught to the poor, because most poor boys would leave school at thirteen?—They mostly leave younger than that.

8744. So that really there is very little chance of getting the mass of the population instructed in agriculture?—Unless you get them to go to farm schools afterwards.

8745. Only a small proportion of the population could go to these schools, and unless they attended all the year there would not be much advantage?—I don't think that, even if they are not able to attend all the year, I don't say so.

8746. I did not quite understand whether you were quoting the exact words of the Education Department with reference to the cardboard work being of no educational value?—Yes; the exact words in the letter from the Secretary of the Education Department to the managers of the school in question.

8747. Mr. Struthers.—Was it cardboard work generally or cardboard work as started in this school?—No; cardboard work generally.

8748. Mr. Redington.—What standard was it taught in?—It was taught in evening schools. I think I have a copy of the letter in the office.

8749. Professor Fitzgerald.—An evening school for young children?—For young boys and girls.

8750. Of twelve years old?—Perhaps rather older; ranging from twelve to fifteen.

8751. Mr. Redington.—I think I understood you to say that there was a great want of inspection of classes conducted under the auspices of the County Council?—I was not specially referring to classes under the County Council, but generally, classes in manual work—that there is no national system of class inspection.

8752. Surely for the elementary schools, there is inspection by the Science and Art Department: could not classes be organised under the Science and Art Department even though the pupils were not elementary scholars?—I am not aware of the fact.

8753. Rev. Dr. Wilson.—What is the average extent of farms in this part of the country?—They vary very much. On the whole, I might say about two hundred acres would be an average; but I don't mean to say there are not farms of one thousand acres.

8754. Chairman.—That would include sheep farms on the mountains?—There are some farms, even not on the mountains, that are a thousand acres; but of course the farms on the mountains usually have a large sheep run in addition.

8755. When a farmer's son applies to get training during the winter, what steps has he to take to get admitted?—We advertise, of course, largely, and send notices out to all the people that we think are likely to take an interest in it. He has simply to write to me, and I put his name before a meeting of the governors of the farm. We have a certain form which he fills up, giving particulars of his parentage, and age and previous education, and what he proposes to do in the future. This is all submitted, and if he is deemed suitable he is selected and attends; if his circumstances are poor his fees are paid.

8756. You would take a farm labourer for nothing?—Yes.

8757. What is the usual charge for a well-to-do farmer's son?—Ten shillings a week.

8758. With regard to manual instruction in schools, have the managers power to decide whether they will provide the apparatus or not?—They have.

8759. And if they decide to supply the appliances from what funds can they draw the money to pay for them?—From the funds of the school. Of course they might obtain a grant from the Department of Science and Art for the manual instruction afterwards; but the initial cost would have to be borne out of the funds of the schools. We are prohibited from assisting elementary schools directly.

8760. Is there a general unwillingness on the part of managers to provide the apparatus?—Yes.

8761. Is that unwillingness diminishing at all?—I am afraid not.

8762. Monsignor Molloy.—I think you said the unwillingness was due to want of funds, not to an objection to the system?—No; I don't think there is an objection to the system at all.

8763. Captain Shaw.—About the system of inspection, did you refer to elementary schools, evening schools, or schools generally?—The school I had in my mind was an evening continuation school. If they take drawing or manual work it is inspected by an Inspector of Science and Art.

8764. But that is confined to those two subjects only?—Yes, only.

8765. Therefore the opinion of the inspectors would not clash over that subject?—Yes, only that the teacher of the evening continuation school has to submit his time-table for approval, which contains all the subjects, to the inspector of the Education Department, and if the inspector of the Education Department sees on the time-table a subject of which he does not approve be may refuse to approve of the time-table.

8766. Mr. Struthers.—In actual practice do you find he declines to approve of the table?—In this case the inspector of the Education Department approved of the cardboard in the school, and it was the Education Department who disapproved of it: it was not through the interference of the inspector.

8767. Professor Fitzgerald.—I understood that the cardboard work had been recommended by the Science and Art Department?—In a circular.

8768. Chairman.—And the Education Department disapproves of what the Science and Art Department has recommended?—It looks like that.

8769. Captain Shaw.—But the Education Department also recommends the cardboard work?—For suitable occupations.

8770. Chairman.—Would you mind reading the letter to us?

Witness (reading): "Education Department, 25th March, 1896. Holme Cultram Evening School. Sir,—Adverting to your letter, I am directed to state cardboard modelling is not recognised as a subject of instruction under article 8 of the evening school Code, as my Lords do not consider it is of any educational value."

8771. Mr. STRUTHERS.—Was that correspondence pursued any further?—It was forwarded to me by the local correspondent. We had gone to some expense and trouble in training teachers for this very work, and after we were pulled up in this way I wrote to the Department, but did not succeed in getting any satisfaction out of them. "They do not consider it is of sufficient educational value to be recognised as a subject for instruction."

8772. Captain SHAW.—Was this given to children of school age or adults?—You could not call them adults; they were children of thirteen or fourteen.

8773. Mr. STRUTHERS.—They don't recognise this cardboard modelling for grant under some special heading—Article 3 in the evening school Code?—We get no grant at all, neither fixed nor variable.

8774. Captain SHAW.—Would you wish that a different Department should suggest a syllabus and inspect in certain subjects in the evening schools?—I think there should be some central examining and inspecting body who would have sufficient national authority to establish a recognised standard and a recognised qualification for teachers of manual subjects, which at present does not exist except the City and Guilds which is confined to elementary teachers.

8775. Then as regards theoretical instruction in your agricultural school, does it not consist to some extent in the elements of botany and chemistry?—Yes; there are classes held every morning in chemistry and botany, mensuration, land surveying, and of course arithmetic and other subjects.

8778. The instruction in these requires special appliances which are not available in every elementary school?—Certainly; besides which, of course, they have the practical work; for instance, these boys have to get up at six o'clock every morning to milk and go through all the work of the farm.

8777. It is more especially about the teaching of theoretical work at a college rather than at a school that I wanted to bring out; is there a chemical laboratory there?—There is not at present, we propose to provide one as soon as we can; the place is only in process of development.

8778. But it is theoretical work—the sciences underlying agriculture—which will be taught there to a great extent?—Yes.

8779. As regards the teaching in the elementary schools, would it not be possible to frame a course of elementary science which would be capable of being practically demonstrated by experiment not necessarily in the name of agriculture but rather as elementary science?—*Witness*—You mean such chemistry or botany as might be considered with special reference to agriculture?

8780. Special experimental work showing how to make experiments, and recognising the results of the experiments when made?—Yes, I don't see any objection to that.

8781. How far are experimental plots used in the county?—We have about twenty experimental plots at different centres in the county. They are more for the use of farmers; they are conducted under a scheme common to Durham, Northumberland, and Cumberland, and it is under the general supervision of Dr. Somerville, and is meant to explain and demonstrate chiefly the value of different sorts of manures and experiments, also as to diseases of crops, such as potatoes and turnips, and so on, chiefly for the information of the farming classes generally.

8782. At the agricultural school the students will get some instruction as to making agricultural experiments?—Certainly, we have experiments going on at the farm.

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8783. That is another part of theoretical instruction that could not be given at an elementary school?—No.

8784 Mr. REDINGTON.—What farm experiments can they conduct in winter?—They conduct the manurial; they don't see the effect then, but they can see the effect afterwards.

8785. Mr. STRUTHERS.—You have trained a considerable number of teachers in agriculture, I think?—Yes, we did.

8786 For the purpose of giving instruction in rural schools?—Yes.

8787. Did you find that experiment did not succeed—that the instruction they were giving as a result of your training was not satisfactory?—Not satisfactory, with a few exceptions where the teacher happened from other circumstances to have a certain practical knowledge as well.

8788. In most cases in Cumberland I fancy these teachers would have a practical knowledge of horticulture—they would have gardens and could experiment?—Not altogether; I am rather afraid gardening is neglected, but still in a large number of cases the schoolmaster has a garden.

8789. In the majority of cases in rural districts would he not?—I don't know that he would do much in it.

8790. Supposing a man has gone through a course of instruction in theoretical agriculture, and has a garden at home and is going to teach agriculture to the scholars, don't you think it is the natural thing, if he is interested in it, that he would carry out experiments himself in his garden?—You would think so, but I don't think they do it.

8791. Do you think the knowledge of the growth of plants to be derived from a garden is very different from what one would acquire on a farm?—Very different; the plants grown are not the same, and the manner of tillage is entirely different.

8792. CHAIRMAN.—For one thing you swallow an enormous quantity of manure in a garden that you don't on a farm?—Yes, it is a different tillage; I should like to emphasize the point that you have none of the training in stock-rearing and feeding, which, now that nearly all farms are grass farms, is much the most important part of agriculture.

8793. Mr. STRUTHERS.—They are principally dairy farms here?—Yes.

8794. At what age did you say children leave school here?—As a rule about twelve or thirteen.

8795. What is the exemption standard?—It varies in every school district; the fifth standard in towns and fourth in rural schools; some fifth.

8796. You consider that these children have so little time to get a sufficient knowledge of literary subjects that it would be inadvisable to spend time on the teaching of such subjects as agriculture?—I think so.

8797. I think you drew a distinction between agriculture in that respect and manual instruction?—Yes, because I think manual instruction, when taught educationally—not taught as a carpenter's trade—fits in much better with the school curriculum, and is of more educational value.

8798. Would you put it in this way: that the practical result of the woodwork is so unimportant, compared with the educational aspect, that the one is not likely to interfere with the other, that is to say, the educational interest is not likely to be disregarded, whereas, in agriculture or horticulture, the educational side would be neglected?—Apt to be neglected.

8799. What about giving instructions in agriculture or horticulture in evening classes to the lads in their own districts?—The very fact that

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the school is held in the evening would be a difficulty

8800. But you say the lads who come to this agricultural farm depend for their practical knowledge on the work they do at home?—To a certain extent, not altogether; they have a very fair practical knowledge before they come.

8801. Lads of fifteen and sixteen in their own district would have the same fair practical knowledge?—Yes.

8802. And so would benefit by a purely theoretical instruction in the evening if you had competent teachers?—Yes

8803 Have you evening classes in agriculture?—A few, not many, on account of the want of teachers.

8804. Those teachers you have trained would not be available for that work?—They have not the practical knowledge.

8805. Could you not get those teachers to take a practical course in some way or other?—I am afraid not, they are tied to their schools.

8806. Then it would not be possible to have circulating teachers who would spend a certain amount of time in a district?—We have had a certain amount of peripatetic teaching done in evening classes, we have had classes for farmers' sons held, and not unsuccessfully; but although that is of use no doubt, still we think that the work at a farm school is very much better.

8807. You have trained a very large number of teachers to give instruction in woodwork, about 100?—About fifty I think only passed, there were a large number in training.

8808. You did not give us the figures for 1894-95, but they were smaller I understand?—Owing to the instruction not being taken up in elementary schools, teachers did not attend.

8809. In 1895-96 has the number been smaller still?—We gave it up with the exception of one class, which you will probably see to-morrow at Penrith; that is a small class for teachers

8810. You have a considerable number of men who have passed the City and Guilds examination, and so are qualified to give instruction in manual work?—Yes

8811. In how many schools is manual work taken up?—I cannot tell you, I really have no business in an elementary day school. I know there are a few, but you could get that of course better from the Inspector of the Education Department In one or two evening schools woodwork is being taught at present.

8812. But you don't think it has been taken up in many rural schools?—Not in many, owing to the difficulty in providing the apparatus.

8813. The chief difficulty is the expense of introducing the necessary appliances?—Yes, the benches and tools are expensive

8814. The School Board have the power of drawing on the rates, so it is not absolutely the want of money but a want of conviction as to the good results?—Yes, I am sorry to say they don't seem to appreciate it very much.

8815. You said there was a want of some central system of organising the manual instruction and inspecting schools?—Yes.

8816. How would that help when there are so few schools to be inspected?—I was referring to the whole country; but the tendency would be for the work to increase if it was put on proper lines. The difficulty we feel at present in assisting this work is that we have no guarantee as to the proper qualification of teachers, or the standard of the teaching

8817. You have the City and Guilds examination, which I understand is a very thorough one as far as practical work goes?—That is restricted to elementary school teachers.

8818. And you think the supply of elementary school teachers who are qualified to take the manual work is not sufficient?—Not only not sufficient, but they can only teach in their schools; the elementary school teacher's time is very limited.

8819. I am speaking of the teaching of manual work in the day schools?—Yes, as far as that is concerned the elementary school teacher of course can obtain his qualification.

8820. Do you think we have reached that stage at which it would be well for a central body to lay down a definite scheme of manual instruction?—I don't see why it should not.

Mr. **Struthers**.—We have been to different centres, and find very different methods in manual instruction and woodwork, and each seems to give very good reasons for faith in its own methods.

Professor **Fitzgerald**.—But all the teachers, as a matter of fact, have been trained in the City and Guilds of London Institute.

Captain **Shaw**.—They have been trained in various centres, but they have all been examined by the City and Guilds of London Institute.

Professor **Fitzgerald**.—I understand Mr. Hodgson considers there ought to be another body, or that the City and Guilds should extend the examination to other teachers.

8821. Monsignor **Molloy**.—I think you conveyed that what you consider the best system of teaching agriculture in schools is by means of itinerant teachers, I mean in elementary schools?—Yes.

8822. With the aid of school plots attached to the schools?—Yes, that was only contingent upon the present school age being raised.

8823. You don't think it could be successful unless the school age was raised?—No.

8824 In the school farm of the Council have the children who attend that school passed through their school course previously?—Oh, yes, we don't take any under fifteen or sixteen.

8825. And what standard have they passed in the ordinary school?—Principally the 5th as a rule, some have been through the 6th and 7th.

8826. How many children are attending that school?—We have accommodation for twelve boarders, and those attended during the last winter, and will leave this month.

8828. Are there any day pupils besides?—I don't think there were any this winter

8829. So that twelve pupils represent the whole teaching for last winter?—Yes.

8830. Does your County Council carry out any scheme of technical education under the Technical Instruction Acts?—Oh, yes, very extensively.

8831. That does not belong exactly to our inquiry but I wanted to know whether you feel that you are hampered in your work by the want of preparation on the part of the pupils who come up from the elementary schools?—Very much; that is one of the great drawbacks in rural districts.

8832. Then do you think it desirable that manual work of some kind should be taught in elementary schools as a preparation for the further technical instruction they get in your school?—Yes.

8833. And do you think woodwork the best preparation for such advanced technical instruction?—Woodwork is rather a wide term; do you mean any kind of working in wood?

8834. Yes?—Yes, on the whole for the older boys, I think cardboard or paper, or modelling in clay, is very good for the younger.

8835. And for the infants you would recommend kindergarten?—Yes

8836. So you would be in favour of the introduction into the elementary schools of a graduated scheme of hand and eye training, from the lowest kindergarten up to advanced woodwork?—Yes.

8837. And you think that most desirable with a view to further technical instruction afterwards to be

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received?—I think it would be very valuable both with regard to further technical instruction and the general education of a boy or girl.

8838. The public funds which are administered for the purpose of technical instruction by the County Council are administered under an Act of Parliament?—They are, two Acts of Parliament.

8839. And in that Act of Parliament there is a definition given of the technical instruction to which those funds may be applied?—Yes.

8840. Am I right in saying that that definition excludes the teaching of trades?—It does.

8841. So that no part of the funds entrusted to you for technical instruction can be applied to the teaching of trades?—That is so.

8842. But they can be applied to the teaching of those principles of science and art which underlie trades?—Yes.

8843. Chairman.—In your technical schools you don't attempt to teach trades?—No.

8844. They are only learned by boys becoming apprentices to tradesmen?—That is so.

8845. Monsignor Molloy.—And you are prevented by Act of Parliament from applying any of the public funds at your disposal, in the teaching of trades?—Yes.

8846. Professor Fitzgerald.—Aspatria is within this district, is it not?—It is.

8847. In what respects does the Newton Rigg school differ from Aspatria?—The Aspatria college, in the first place, is a private institution; in the second place, it is of a more advanced character; it takes boys from all parts of England to attend it, and it rather aspires to a higher plane, I think, than a mere farm school.

8848. So you thought it was desirable to institute a farm school in addition to this technical college?—We had no power over the college, because it is a private institution in private hands.

8849. If boys could come to that farm school all the year round, would it not improve their education?—I have no doubt it would.

8850. Would it not be well for them to see the results of their experiments?—Oh, yes. I don't know that the result of experiments are a very great advantage to boys.

8851. Is it not one of the defects in our present agricultural classes that they are unwilling to make changes in their methods?—Yes.

8852. Do you not think it would be desirable that they should have experience of making experiments when they were children in order to make them more willing to make changes—would not that be a desirable part of education?—If by experiments you mean demonstrations—for instance, of the value of certain manures—I would say "yes"; but if by experiments you mean simply trying something which may be of very little practical use, I don't know that to the ordinary farmer it is very much good.

8853. But if during their school time they had some elementary science taught in which they were shown and encouraged to make experiments themselves, would not that be of educational value?—Yes, certainly; now you are referring to chemical or physical experiments, not agriculture.

8854. Is it impossible to make agricultural experiments on a small scale in pots?—The conditions would be so very different.

8855. Have you considered the way in which experiments on the culture of legumes has been actually carried out, to discover whether the nitrogen was derived from the air or the soil: were not all those carried out in pots?—Yes.

8856. Then is it not possible to carry out experiments in pots which may be of great interest and value?—Possibly so, under careful directions, and the differences carefully explained to them—the difference between conducting an experiment in a pot and on a large field.

8857. But the object is the educational value of encouraging the children to make experiments, not to instruct them in farm work: would not the educational value of a course of experimental science by children be of use to them?—Yes; I have no doubt it would be valuable.

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8858. That has not been introduced?—Not at all.

8859. How far has object lesson teaching in elementary schools been introduced?—*Witness.*—Do you mean like kindergarten work?

8860. It is advanced kindergarten work—rather for the lower standards?—Well, as I said before, I really cannot speak with authority upon what goes on inside the elementary schools, because I am not supposed to have anything to do with them; but as a matter of fact I know it is adopted in a large number of schools.

8661. Do you not think that they could be chosen so as to be suitable for children who would be likely to be farmers?—That would depend largely on the Code; the Education Department can make anything be introduced if they put it into the Code.

8862. As a matter of fact do they not adopt almost any Code that local people introduce?—I don't think so.

8863. Do you think making collections of plants and injurious insects would be of use?—They have botanical collections in a large number of schools.

8864. Are the children encouraged to make the collections themselves?—Yes, they bring wild flowers and grasses.

8865. Do you not think that is of educational value?—Certainly, a very useful thing.

8866. At present excursions to museums in towns can be utilised as part of the school day: could not excursions to neighbouring farms be used sometimes to illustrate agricultural teaching without the school having a farm?—Yes, it could be. Do you mean whether it is simply possible or whether it would be of value?

8867. Would it be of value?—I don't think it would be of value unless the age of the children was a very much higher average than it is at present.

8868. Horticulture could be taught in small school plots?—Yes.

8869. Would not small school plots be of use in that respect?—Yes, I think they would.

8870. You mentioned a school, I think, in which some manual instruction had been taken up and was unsuccessful?—Yes.

8871. At what time was the instruction given?—It was given during the day—I really don't know the the exact time—in school hours.

8872. How many teachers were there in the school?—The head teacher took the manual instruction.

8873. But there were other teachers?—Yes, it was a large school—there were several other teachers.

8874. Then your objection to teaching agriculture does not include an objection to teaching object lessons in elementary science suitable to children?—Oh, no.

8875. If that teaching in elementary science was not substituted for, but as leading up to, school farm training, do you think it would be likely to provide instruction which would be of use to them when they went on the school farm?—I think it would.

8876. And you think experimental plots would be of value for horticultural training?—Yes.

8877. Mr. Struthers.—On this farm do they pay attention to the question whether farming should pay?—Yes, we are very particular about that; the Governors have a special report every month, showing all sales and financial transactions that have taken place.

8878. That is a thing that is kept constantly before the pupils—they are taught the style of farming that would pay best?—They are taught farm book-keeping also.

8879. Mr. Redington.—Are there any experiments in new methods of farming attempted?—Yes.

8880. Would the fact that they tried to make the farm pay interfere with experiments?—Of course that

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has to be taken into consideration. You cannot expect an experimental farm to pay the same as an ordinary farm.

8881. CHAIRMAN.—What rent per acre do they charge the land with?—The farm is rented.

8882. Then there is an actual sum you have to pay for it?—Yes; it works out about £2 an acre.

8883. Is that an ordinary rent in that part of the country?—Yes.

8884. Rev. Dr. WILSON.—Is the tendency in this part of the country to lay down the land in grass, increasing?—It has been of late years.

8885. It is found that tillage does not pay?—Yes.

8886. Then they must devote themselves to raising cattle and sheep?—Yes.

8887. Do they stall-feed?—There is a considerable amount of stall-fed cattle and dairying; there is a good deal of trade done in Irish cattle.

8888. Captain SHAW.—The Education Department recognises cardboard work as a suitable occupation only in the elementary Code?—I believe so.

8889. Manual instruction is generally understood by the two Departments as working with the tools used in wood or iron?—It is not the definition in the Act.

8890. It is the definition under which the Science and Art Department gives the grant, and therefore when they put down manual instruction in the Code they probably had that style of instruction in their minds?—Possibly.

Mr. J. W. Slater.

Mr. J. W. SLATER, Director of Art and Manual Instruction to the Cumberland County Council, examined.

8891. CHAIRMAN.—You are Inspector of Classes and Director of Art and Manual Instruction under the County Council of Cumberland?—Yes.

8892. I think you can give us some particulars with regard to classes held in this county for the training of teachers?—Of course Mr. Hodgson has given you several particulars.

8893. Then you need not travel over the same ground, but can supplement what he said?—The centres were fixed with the idea of giving the teachers of the county an opportunity of qualifying in art and manual instruction. For the first two years, of which Mr. Hodgson has given evidence—1892-93 and 1893-94—I had no connection whatever with the manual work—simply art; another man took charge of the manual work. Since that time—from 1894 to 1897—I have had the two branches. In the first session we had in drawing, seven centres; those were arranged in convenient places, and we drew the country teachers, and in most cases the town teachers, there. The first year there was no grant made by the County Council towards defraying their expenses of travelling; the number attending were 178 at seven centres. In 1892-93 we had two or three rather small centres. In the following year we reduced the centres to four with an attendance of 137. Of course we lost a few of the first year's students through having gained their certificates.

8894. Will you give us the distances travelled?—For the first year they would range from two or three miles to perhaps ten; the second year, when we made the number of centres fewer, the distances would extend to about twelve miles—twelve miles each way.

8895. Generally reached by railway, I suppose?—In many cases; still in a large number of cases they walked in.

8896. How far would they walk?—Up to eight or ten miles each way. The following year we re-arranged the classes in many respects. They were not so convenient and we lost a few students; the number dropped to 108, but the distance that some of them travelled, reached fifteen miles.

8897. What aid does the County Council give towards travelling expenses?—In the first place there was nothing given; then, in order to encourage country teachers, the County Council made a grant of 6*d.* a mile one way for walking. The idea of that was to provide them with a meal when they reached a centre. The next year, 1894-95, they extended the aid and paid half the railway fare, but we found in many cases that the teachers attended the centre that they could make the most money out of, not the one that was most convenient, and we had to modify it a little, and the aid was only given in approved cases; they had to make application at the beginning of the session; it rather reduced the number of students, although it improved the quality. So in 1895-96 we dropped to 88 attending the four centres, and this year we have only three centres with 80 attending, and the expenses have been practically nil. We have not had more than one or two applications for aid.

8898. In fact, having weeded out your students to the best of them, you have not quite half what you started with?—We have not half the centres; we started with seven, we have now only three.

8899. Professor FITZGERALD.—Are not nearly all the teachers trained?—No, there are always others rising.

8900. Captain SHAW.—You have trained a large number?—Yes, over 600 have attended my Art classes during the last five years.

8901. CHAIRMAN.—And they don't come any more?—In many cases they are coming on for advanced work, after having gained the elementary certificates.

8902. What examination of students is there, and what certificates are obtainable, in drawing and in manual training?—In drawing all the classes are under the Science and Art Department; students sit chiefly for the elementary drawing certificate called the "D.", and having got that they are in many cases satisfied. Whereas in the first session the whole of the work was elementary, since then there has been a gradual growing of the advanced work, so that we finished off last year with almost half the work advanced—the number of certificates was forty-five Elementary and thirty-four Advanced.

8903. You are alluding to drawing only?—Yes. Now, the manual training—woodwork—that of course has been under the City and Guilds of London Institute. Clay-modelling, the first year that it was introduced was not under the Science and Art Department, but last year it was placed under that Department. Then for the other branches, such as cardboard and woodcarving, there are no examining bodies, but in certain approved cases the County Council have granted certificates, though they may not be recognised outside the county.

8904. Have you anything to say on the value of centre classes to head teachers?—In the first place they are the means of bringing village teachers together, they prove a valuable means of intercourse between teachers in scattered districts, who are able to compare notes with regard to their general school work, and the exchange of views has been most beneficial. Besides, a teacher may have peculiar difficulties to contend with in his own school; those have been either mentioned to me or other teachers and we have been able to help each other.

8905. That does not refer to the particular subject of instruction in those classes?—It does refer chiefly to drawing. I am speaking more of the first few sessions when drawing was an unknown subject in the county, the number of "D's" was very few indeed, and teachers knew very little about the work, so that for the first two or three sessions, in addition to attending the classes for the purpose of instruction, they would bring sets of work done in their day schools for me to mark and report upon.

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8906. Are there any alterations that you would suggest with regard to requirements for teachers' certificates, and dates of examination, and the system of granting certificates?—The requirements as at present enforced are rather stiff for an elementary teacher's certificate. The Science and Art Department have introduced a new certificate called "second class D," and the requirements for that are not quite so advanced as for the "first class D"; still teachers do not like two grades, they don't like the idea of being classed as "second." I think it would be better to have an elementary teacher's certificate, with requirements a little lower than those for the present "first class D" and a little beyond those for the second class certificate, and only have one grade. In the case of teachers wishing to give instruction in elementary art classes I think there should be very little alteration; the "D" at present will entitle a teacher to give instruction in his day school and also in an art class. I think the two certificates might very well be distinct.

8907. Could you give us some idea as regards the cost of introducing manual instruction in schools?—In many places the chief difficulty is the provision of a room. Either a room in the school has to be utilised or a special room in the form of a shed built outside. That of course I cannot say very much about; it would depend on the circumstances of the case.

8908. We have had evidence of what could be done in the way of putting up iron sheds?—Well, in the equipment of the room, I think, the minimum requirements would come to about 25*s*. per head, but that can be very considerably increased by getting more expensive benches.

8909. You think it could be done for 25*s*.?—Yes.

8910. What we have heard hitherto was 35*s*. to £2?—I think it can be brought as low as 25*s*.

8911. One witness yesterday suggested to us that in cases where there was a difficulty about the means of equipment in quite a small place, it would be possible to extemporise benches by fixing boards to the ordinary desks?—I have seen that done, but it is not very successful, because if they use a vice it is not very firm; as a rule they use holdfasts, or a couple of screws gripping the piece of wood; it is not very substantial, still I have seen it answer.

8912. It is better than nothing?—Yes, better than working on an ordinary table top.

8913. Professor FITZGERALD.—Have you seen the benches that fold down from the wall?—Yes, I saw that in one centre.

8914. Could not that be made firm?—That would do: in that case they would have to use a loose vice, which would have to be screwed to the bench.

8915. CHAIRMAN.—Could you give us any hint as to the various forms of manual training?—I think for the lowest standards modelling in clay is generally recognised as the best one to begin with, to be followed by modelling in paper and cardboard, and afterwards by woodwork, which may be extended to wood-carving.

8916. And it might, if thought desirable, be extended to metal work as well?—Yes.

8917. Can you say anything with regard to schemes of instruction?—Take the first subject, modelling in clay. All exercises worked in clay shall be such as can be conveniently copied from nature—fruit, or something of that kind. In paper or cardboard I think the best exercises to introduce are those geometrical forms in the style of drawing models used in schools; those can be extended and made into useful articles. A hexagonal prism, by taking out one end, can be utilised as a spill pot. In woodwork there is far too little attention paid to drawing, teachers like to get the children working at the benches, the children like it, and hence there is very little time given to drawing; and also to object lessons on the timbers which they use, the cost and construction of the various tools, and what you might almost class as the purely educational side of the subject. There is too much attention paid to practical work, and the educational part is allowed to suffer. That has been due to the qualifications of the teacher in many cases. When the subject was new managers were obliged to employ the local joiner or carpenter, and all he could do was to give instruction in practical work. I think the thing is improving as far as this is concerned, the instruction is now mostly given by elementary school teachers, and they are better able to impart the instruction and in a more thorough manner.

8918. What system of inspection and examination have you?—As a rule we pay visits without notice, I try to get round to each centre twice during the session, the first one being almost invariably without notice; I watch the class at work the whole of the lesson. As a rule the second visit is just about the end of the session, and I often give notice so that the finished exercises can be brought in, and I can see the whole of the work that has been done by each student.

8919. How do you ensure uniform methods?—We have secured these to a great extent by having our teachers trained in central classes; they have all been trained under one system, and the teaching is similar in the various schools.

8920. What arrangement is made with regard to grants?—The grants we pay do not touch the elementary schools; we are concerned chiefly with evening schools, and we make a capitation grant of so much per head on the number attending; but the grants paid to day-schools at present by the Science and Art Department I think are rather small, when one takes into consideration the cost of equipment; it practically swallows up the whole of the grant in material, and leaves very little indeed for teaching, so that if a special teacher is to be employed there is not very much left out of the grant to pay him

8921. What is the grant?—About 9*s*. per head. That is the maximum.

8922. Mr. REDINGTON.—Would you spend 9*s*. per head on material?—There is the outlay on benches and tools, in addition to timber, &c., to be considered.

8923. Mr. STRUTHERS.—You are counting interest on benches and tools?—Yes. The outlay would not be covered in the first year.

8924. Mr. REDINGTON.—Have you worked it out in detail with regard to one school?—If you buy in large quantities you can get it less. We usually reckon 1*d*. or 1½*d*. per lesson per boy for timber.

8925. What are the centres that you inspect—are they centres where teachers are taught?—I teach myself the centres where teachers are trained; the centres I inspect are chiefly local centres where boys attend evening classes.

8926. So that they are all boys of at least fifth or fourth standards?—As a rule they will have passed the school age.

8927. And the school age?—Varies in different parts of the country—standards 4 or 5.

8928. You begin with clay modelling before cardboard work is introduced?—Yes.

8929. What kind of things do they model in clay?—They begin first of all with articles they can roll in their hands—circular forms,—fruit; afterwards pass on to objects which have to be built up bit by bit. The first part is more in the form of clay moulding.

8930. Have they had any experience in their schools in clay work?—We take the subject for the training of teachers with a view to introducing the subject in the day schools.

8931. Captain SHAW.—Have you given the number of teachers trained?—Over 1,000 have attended the various classes during the last five years. The number of certificates in art was 98 in 1895-96, 79 in 1894-95, 100 in 1893-94, and 76 in 1892-3.

8932. You are the only person who has been employed in training teachers in drawing in this county?—Yes.

8933. Can you give us approximately the area of the county you cover?—I take the whole of the county. The limit will be Millom, roughly speaking, seventy miles from Carlisle.

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8934. How broad is the county, thirty or forty miles?—I think so.

8935 You have been able to cover an area of that extent and train a large number of elementary school teachers?—Yes. The system has answered well; but we have been obliged to cut down the number of centres. We could have done with more centres, but there has not been the staff for them. I have been obliged to devote less time to the teaching and more to inspection.

8936. CHAIRMAN.—In what direction did the scope of your work extend—to other subjects?—Yes. In the first few years I was confined to drawing alone.

8937. Captain SHAW.—You have seen the result of your teaching in the schools?—Yes; I have visited a large number of elementary schools to see how the teaching there was carried on.

8938. Do you find the result of the instruction has affected the teaching? Yes; I think there is a very considerable improvement in the quality of the work of the day schools.

8939. Do teachers take more interest in drawing when they have a certain facility themselves?—Yes; and the instruction is given on better principles. Before, it consisted in fixing up a copy and telling the children to go on; there was very little real instruction given.

8940. Monsignor MOLLOY.—Do you think it desirable that drawing should be taught in all elementary schools as far as possible?—I think so.

8941. And also some form of manual work, like woodwork and cardboard work?—Yes, I consider these subjects are very closely allied to drawing, and very important.

8942. I think you said that these subjects have been considerably developed in the elementary schools of this county, owing to the action of the County Council?—Yes.

8943. Are they now taught in schools where they were not previously taught?—Yes, both in drawing and manual training.

8944. Can you give us approximately an idea of the number of schools where they are taught now and were not taught before?—Drawing is now taught in every boys' school, whereas in the first year or two, when it was optional, I don't think it was taught in more than twenty.

8945. And woodwork?—Woodwork has not been taught in many elementary schools, chiefly on account of the want of accommodation.

8946. I suppose that these subjects are much better taught now than they were taught before?—I think they are; there is an improvement in the methods of instruction.

8947. Do the teachers of voluntary schools come to your classes, or only teachers from Board schools?—We get all grades, voluntary, and Board, and Catholic teachers as well.

8948. Do they come in equal numbers?—Yes; I see no difference.

8949. Professor FITZGERALD.—You said there was no expense in teaching the teachers of late; do you mean no expense in bringing them to centres?—Oh, yes, travelling expenses.

8950. How much did it cost to fit up a centre, or were the centres already fitted up?—No; we fitted all our centres up when I started the teaching.

8951. How much does it cost to fit up a centre?—In some cases I obtained apparatus that was moved about from centre to centre.

8952. How could it be carried about from centre to centre when those were on Saturdays?—I am not speaking of compulsory apparatus, but additional things to render the teaching more effective. I think as a rule £2 per centre covered the cost—the model and casts.

8953. That was the principal expense?—That was the chief expense.

8954. Then did you not require benches for manual training?—I think our average would be for manual training, not reckoning the rent of the room, about £2 10*s.* per head for teachers classes.

8955. And you find that three or four centres for a large county like Cumberland was sufficient?—That depends entirely on the railway service and the nature of the county. But even in a comparatively sparsely populated county like Cumberland, four or five centres would be sufficient.

8956. Had you to put up buildings?—No. In all cases we utilised the elementary schools or engaged a large room—a workshop.

8957. How many schools take up the hand and eye training in the elementary cardboard and elementary manual instruction—do many schools in Cumberland take it?—We have no means of knowing the exact number; but when the Department made varied occupations compulsory practically every school started. Since the Department removed the compulsory clause, a few of the schools have let the thing lapse; but there are a fair number still going on with it.

8958. At present all the schools teach drawing?—Every boys' school, and most of the girls' schools

8959. Do they teach mechanical and freehand drawing?—Yes.

8960. Is there any other art besides drawing taught—do they teach colouring brush-work?—Yes, in probably ten schools at the outside brush-work is taught.

8961. Then there is carving and woodwork?—That is taught chiefly in the evening schools.

8962. And is advanced modelling in clay taught?—We have not quite reached that stage; the bulk of the instruction has been elementary.

8963. Is it not easier to teach advanced modelling in clay than wood-carving?—We teach modelling in clay as being introductory to wood-carving

8964. The county authorities cannot give any help in these elementary schools?—No.

8965. But they think that all these manual instruction subjects are of importance, and to be encouraged?—Yes.

Dr. William Somerville.

Dr. WILLIAM SOMERVILLE, Professor of Agriculture and Forestry, Durham College of Science, Newcastle-on-Tyne, examined.

8966. CHAIRMAN.—You are Professor of Agriculture and Forestry in the Durham College of Science at Newcastle-upon-Tyne?—I am

8967. And you are kind enough to come here to give us some information with regard to various matters. First of all, with regard to field demonstrations and experiments?—We have been conducting these during the past five years—first in Northumberland, afterwards we extended the work into Durham, and during the past two years we have been taking charge of similar work in Cumberland.

8968. What method do you employ as regards the demonstrations?—We very often endeavour to find out whether the farmers' practice is the very best possible under the circumstances or not. We occasionally attempt to do some thoroughly original work, but for the most part we rather work on practical lines, and the farmers lend us the land free of rent as a rule. We do pay rent for four stations, but that is quite accidental. We find we can get as much land as we require rent free, and the farmer provides the labour and the necessary quantity of farmyard manure.

8969. How much land does he give you as a rule?—The area varies. We have seldom less than one acre at any one place, and I don't think we have ever more than 5½ acres, and of course we require to select the land with great care, to see it is thoroughly equal in character, and has not been disturbed by previous treatment: and then we arrange a scheme of experiments, probably, after consultation with him or other local farmers, to find more particularly what they want. We blend the artificial manures in the mixing-house at the College, having previously carefully analysed them. We send them down in bags, each bag bearing a number corresponding to the plot. We send a representative from the College to measure the land, and very often to supervise the application of the manure.

8970. In the case of a small plot, say, of one acre, is it spade labour?—No; if it is tillage land it is ploughed. The manures then go down from the College, each in its own particular bag, and is applied under supervision, and during the growing season we generally make one visit to the station, meet the local farmers, inspect the crops, discuss the questions involved, and possibly others that may come up, and in due course we reap the produce, also under careful supervision, and put the results in the report. We are very careful to duplicate the experiments in a variety of districts to get a fair average result.

8971. Supposing you had a single acre, how many different sort of crops would you grow?—It would depend on the size of the individual plot. Where we are dealing with permanent meadow land it is usually one-twentieth of an acre, sometimes it is one-sixteenth; but we don't find that we gain anything by making the individual plots larger than one-sixteenth.

8972. Is that for meadow?—Yes; but where we are dealing with tillage land we require to have larger plots, and especially if we carry the experiment through more seasons than one, as we often do. We carry the experiments often through a four or five-course shift. In that case we like to have the size of the individual plots a quarter of an acre.

8973. So that if you had a four-course shift you could have a succession of plots?—Yes, a quarter of an acre is practically 100 yards by 12. We found it was more convenient not to have them square. In horse labour it is easier to do the work if you have a long rectangular strip of ground, there is less turning; we generally make them about 100 yards long and 36½ feet wide.

8974. Are there farmers' meetings at these demonstration plots?—Yes; we always attempt to get the neighbouring farmers to meet us at least once on the ground, and those experiments are almost always followed up by a course of lectures upon results. Generally a course of four lectures is held in a convenient centre, and the farmers turn up very well indeed to the lectures.

8975. Do you ever have lectures held on the ground itself?—We have not formal lectures, but the meetings we have during the growing season are equivalent to lectures and demonstrations.

8976. And then there are lectures at Chambers of Agriculture and Farmers' Clubs?—Yes; most of the Farmers' Clubs in the north make application once or twice in the session for lectures on the results we have been getting with our experiments, and we find those lectures are very fairly appreciated; the request for them is purely spontaneous, and as a consequence we assume they are wanted.

8977. Do you make any experiments with regard to such things as draining and subsoiling?—No, we have never tried any experiments of that kind; we are dealing with the surface of the land. The Northumberland County Council has just taken a farm of 400 acres; a great deal of that farm requires draining, and altogether it is in an exceedingly bad condition—fences, fields, drains, everything as bad as they possibly can be. That is one of the chief attractions of the place, and when we get our boys there we shall be able to carry out demonstrations on proper methods of fencing, and draining, and road-making.

8978. Is the soil good?—It varies; there is about seventy acres of light tillage land, but the rest is very strong clay. There are sixty acres that have never been drained at all. A good deal of the rest has been drained, but the drains are not working satisfactorily.

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8979. Have you any model garden plots?—We have a few up and down the county; a local committee is formed and makes application to the Northumberland County Council for the services of their horticultural instructor; he drafts a scheme which is submitted to the local committee; a suitable area of land is selected and divided into as many plots as there are pupils—usually ten or twelve—and the services of a practical local gardener are secured, who meets the boys on the ground once a week, and he himself manages one of the plots and the boys manage the others under his supervision.

8980. Where do the boys come from?—They are boys living in the village—very often boys engaged in various employments—and who meet upon the garden plots in the summer evenings, and the County Council allows a certain amount towards the expense of these plots, and is also prepared to provide a certain amount of fruit trees and bushes.

8981. Are those plots in connection with evening schools?—Not necessarily; they are designed for ex-standard boys and others, but they need not necessarily be carried on in connection with evening continuation schools.

8982. Mr. Struthers.—If they are they get a grant from the Education Department?—I believe they are qualified to get a grant.

8983. Chairman.—Do they teach anything of the theory of agriculture in the evening continuation schools?—Yes, they confine themselves essentially to the theory.

8984. Have you evening lectures to rural audiences?—Yes, we do a great deal in that way.

8985. How is that done?—So far as Durham and Northumberland are concerned, the agricultural lectures for rural districts are entirely drawn from the Durham College of Science. We have an arrangement with the two County Councils under which we give a certain number of lectures in return for a certain grant. Sometimes the course of lectures extends to twelve, one lecture a week for a whole term; frequently, however, they are shorter, and especially where they deal exclusively with the results of our experiments. We find it rather difficult to get farmers to turn out regularly during the twelve weeks, whereas they will turn out with fair regularity during a shorter course. The local committee meets the expense of the hall and advertising, and the Durham College of Science pays the travelling and hotel expenses of the lecturer. A great deal of the success of such lecture courses depends upon local organisation. If the secretary is an active man, who brings his own personal influence to bear upon the farmers of the neighbourhood, they are a great success as a rule, if the local secretary is not active, and does not care about it, they are generally failures. It is very desirable to get a well-known practical man to take the chair, and initiate a discussion after the lecture, the discussion being frequently more valuable than the lecture.

8986. Have you evening lessons to foresters and gardeners, and if so, where are they held?—This is a particular scheme which the County Councils of Durham and Northumberland conjointly took up in the beginning of January, 1896. These two County Councils offered small scholarships—scholarships sufficient to cover the travelling expenses of the men and their college fees—and as a result of offering these scholarships, we got about twenty-six gardeners and foresters—practical men—to enroll themselves for these classes. During the first term they confined their attention entirely to botany, getting one evening in the week—that was the number of times the classes met—a lecture on the elements of botany, followed by a practical demonstration on the work of the lecture. That went on during 1896. Then we come to the summer time during which there are no evening lectures in

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the College, and the class was resumed with exactly the same men in the beginning of October of the same year. During the two winter terms which have just finished, the instruction of these men consisted chiefly of lectures and practical demonstrations so far as it was possible in forestry.

8987. Are those given by yourself?—Those are given by myself.

8988. What class of gardener goes to these lectures?—The younger class of men for the most part.

8989. Who want to improve themselves?—Yes; very few of them are over twenty, and the same with the foresters. We held the examinations last Monday night, and the results are very satisfactory indeed. The men attend with great regularity, and the percentage of absentees very seldom amounted to five per cent.

8990. Mr. Struthers.—Was the examination oral or written?—It was written. Of course it is impossible to do much practical work of a forestal character in a collegiate course, but we can at all events place all the different kinds of wood in the hands of the men, and point out their character and methods of identification, and structure and peculiar properties, and so on.

8991. Chairman.—Do you give them instruction as regards thinning plants?—Yes; that was part of the course.

8992. What distance apart to leave the trees?—Under the different conditions and different species, and different trees selected under different conditions of situation—strong land, light land, high land, low land, wet land, and so on.

8993. Do you give them practical hints as regards young plants, what they should do in case of there having been a gale of wind, in putting trees up again and tying them, and if there is game about, wiring them in?—I don't know that we cover these actual points, but the instruction was exactly on those lines. We started on the assumption that we had an area of land to stock with trees, then we proceeded to see how the stocking was done by seed or by planting or natural regeneration; then in connection with the planting we took up the rearing of young trees.

8994. Bearing in mind that it is one thing to plant a plantation, and another thing to keep it in order afterwards, particularly if there is game?—Having established our wood, we proceeded to see how it should be managed, how it should be thinned, and finally, how it should be utilised.

8995. Have you collegiate instruction for agricultural pupils?—We have a regular college course which embraces two years work and may extend to three; some of the men are even staying for a fourth year.

8996. And the examination is by written question and answer?—Yes; but these men have a certain amount of practical experience in the way of Saturday excursions to farms in the neighbourhood, and also this farm in Northumberland, and we also try to visit woods and nurseries with these young men.

8997. Do the proprietors of woods in these counties afford you facilities?—Yes; they certainly afford ne every facility. The English Arboricultural Society has just started a certificate examination which comes off the week after next, and one of the neighbouring proprietors has given us facilities for going into his woods and examining the men in actual practical forestry—cutting trees, thinning trees, putting up fences, making pits for trees—and that is a practical examination as distinguished from the examination of the Highland and Agricultural Society, which is theoretical.

8998. Professor Fitzgerald.—There is instruction given at Coopers Hill in forestry?—Yes, for Indian students.

8999. Chairman.—What do you do in the way of dairying?—We have had two migratory schools in Northumberland and Durham, and there is one in Cumberland; but our work in Cumberland is entirely confined to experimental work.

9000. In Northumberland and Durham?—The room is hired, pupils are enrolled, and for ten days, sometimes extended to five or six weeks, they do practical dairying, butter and cheese-making, and sometimes milking.

9001. You mentioned you have established a farm school, which I understand has not yet been got ready for the reception of pupils; what is proposed to be done in that way when it is ready?—This is the farm I have referred to as being so very much out of order in every sense of the word.

9002. Is it to be a farm for the reception of pupils who are to live there and pay fees?—Precisely; it is to be on the same lines as the Penrith farm. We don't propose to make a speciality of dairying on that farm, because Northumberland is not interested in that subject.

9003. Do you propose to keep the pupils for only the winter months?—No, for the whole year, except for a short holiday.

9004. And therefore they will have an opportunity of seeing all the processes of farming?—Yes; and be made to take an active part in them. The farm is very much in want of repairs of various kinds, and we don't propose to effect all these repairs in the first year or the first five years; we propose to do a little every year, so that the different relays of pupils will have an opportunity of becoming acquainted with the practice of draining, fencing, and such like.

9005. Do you propose to do anything in the way of making plantations?—We have taken power under our lease to plant thirty acres; at the end of the lease the plantations will be taken over by the landlord at a valuation. We have appointed a horticulturist—a practical gardener—who has a fair knowledge of forestry, to take charge of that department, and he is now at work getting the nursery ready.

9006. May I ask what rent you pay?—£200 for 400 acres.

9007. Is that about the average value of land in that part?—It is a great deal less than the average value of land in that part; but it was just the rent the outgoing tenant was paying, and he was so little satisfied with his bargain he desired to be relieved of it.

9008. It is as much as it is worth?—Yes. The Duke of Portland has expended £800 free of interest on buildings for us, and is prepared to do any amount of draining at 4 per cent.

9009. Will that £800 cover all you want for the purpose of the school, or is it merely for the equipment of the farm?—Yes; and that £800 won't even cover the cost of the buildings necessary for the equipment. The Northumberland County Council has already spent some hundreds of pounds on buildings under an arrangement by which the landlord takes over these buildings at the end of the lease at a valuation, if they can be proved to be buildings suitable for the farm as a farm, and then we propose to improve the house so as to take in ten or twelve pupils. And if Durham joins Northumberland we shall constitute permanent dairy teaching there as well.

9010. Professor Fitzgerald.—Our principal interest is with reference to elementary schools. Do you not think that the habit of making experiments could be encouraged in elementary schools, so that when the scholars became farmers they would be more likely to be able to learn from their own experience?—Yes; I think that demonstration plots might be used with advantage in connection with elementary schools, if the schoolmaster took an interest in that work and was capable of carrying it on.

9011. Could not small experimental demonstrations be carried on in flower pots?—A great deal of the most valuable work on the Continent has been done in flower pots.

9012. Could not children be encouraged to make experiments and learn from experiments?—There is no doubt at all about it; they would gain a great deal of valuable information beyond the mere cultivation

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of the plants. In dealing with manures they must necessarily learn a great deal about their character and mode of application.

9013. Have you studied the course which has been recommended for elementary agricultural teaching in French schools?—I have a general idea of Continental methods, but I cannot say I am familiar with any recent development.

9014. They recommend experiments in elementary science and elementary chemistry leading on to elementary botany: could not a course of that kind of object lessons and experimental lessons be arranged that would be of educational value to children in schools?—Yes; we have just now put down some experimental plots in connection with a school in Durham, the secondary school at Barnard Castle. It would be well to make the boys do the work themselves.

9015. Do you think the collecting of injurious animals, and the teaching from observing the effects on such animals and the fungi, could be increased by encouraging children to make collections?—It all depends on the pupil.

9015A. Would not that be an important thing to encourage amongst boys in agricultural districts?—Distinctly, it encourages habits of observation.

9016. Do you think it would be an advantage to make excursions into different districts to illustrate geology and geography and farming, to interest children in the subjects they are taught?—I doubt if children are in a position to benefit from inspecting systems with which they are not familiar. They must be thoroughly well acquainted with some particular system of farming before they are qualified to appreciate the advantages or disadvantages of any other systems they may come in contact with.

9017. You think the encouraging of a habit of observation of natural phenomena and of experimental inquiry would be an important one to encourage in the schools?—Decidedly. Anyone that fosters a spirit of that kind is bound to lead a much happier life. I don't know whether he will develop into a more practical farmer or not.

9018. Don't you think it is desirable that he should be encouraged to observe whether the injury done to his plants is due to fungi or animals?—Distinctly, he cannot do wrong in observing that as much as possible. I thought perhaps you rather referred to his going into different districts and studying the configuration of the land.

9019. I was recapitulating the thing to see if you thought object lessons and experimental science would be of use in schools?—They are bound to be in the direction of mentally developing boys.

9020. Monsignor MOLLOY.—Did you find the farmers ready to co-operate with you in the agricultural teaching which you have been engaged in carrying out?—Oh, certainly on the whole.

9021. Do they take an interest in the work?—Yes, they take an interest in the work as is evidenced by the fact that it has been going on for five years without any attempt at forcing the teaching upon them. There are a few places which won't have us at any price.

9022. But the example plots where you introduced your teaching were given to you by the farmers for the purpose?—That is so; they are given to us for that purpose, and we have now not much less than 100 acres of land under experiment in the three counties which is all given spontaneously, and not only spontaneously, but we have the offer of much more than we can take.

9023. Do the farmers get the crops?—They get the crops.

9024. They also get the benefit of the seed and the manure?—They don't get the seed, they get the artificial manure; and against the advantage of getting the manure we have to put the disadvantage that in demonstrating we have frequently to show how very badly some manures or systems do, and the result is that some of the land is not bearing the maximum of crop.

9025. Do you mean you have to show the effect of bad manuring?—We have to use incomplete dressings.

9026. CHAIRMAN.—Do you mean that the farmer gives you the manure or do you buy it?—We buy the manure direct from the dealers.

9027. It is your manure—is it your seed?—It is our manure, it is his seed.

9028. Monsignor MOLLOY.—The farmer pays for the seed and the agricultural institution pays for the manure?—That is so, except the farmyard manure.

9029. Did you find the pupils were interested in the work—the pupils under instruction?—The pupils at the College are very much interested in the work indeed.

9030. Who were the pupils that carried on the work in the example plots?—In the case of the garden plots, they were the boys in the villages; in the case of the argricultural plots, they were carried on by the farmers.

9031. In the garden plots did you find the pupils took an interest?—Well, only moderate. We have never been able to have more than five or six of these garden stations in Northumberland in any one year, and the amount of interest evoked is not, I must say, very great.

9032. How widely extended are those example plots—over what area do they extend?—They are located in a very large number of places.

9033. Do they extend over half the county?—We try to put them within the reach of every district in the various counties.

9034. Then they ought to be instructive, not only to the farmers on whose farms they are carried out, but also to the neighbouring farmers?—That is so. Neighbouring farmers meet us on these plots once in the session and discuss what is going on.

9035. Do the neighbouring farmers show that they have profited by the teaching, by carrying out an improved system of farming on their own farms?—In a great many cases distinctly so.

9036. Then in the neighbourhood of these example plots, the general character of the farming about would be improved?—Decidedly so; there are some men of course who don't pay the slightest attention to what we are doing.

9037. They think you are theorists?—They did, but after five years' work they are beginning to think a little differently.

9038. Do you find the feeling with regard to your teaching has been improved during the five years?—I think so. I have never come face to face during the last five years with any man who has had the courage to say he does not believe the work is doing good. There may be such men, but I have never had the pleasure of meeting them.

9039. I understand generally then that you consider the teaching on these example plots has been successful, but only moderately successful?—I think the teaching on these agricultural plots has been practically an unqualified success.

9040. As regards the farmers on whose farms they were carried out; but not so great a success as regards neighbouring farmers?—Oh, yes; I don't think you can say that. I don't say every farmer in the neighbourhood has adopted our methods; some of them did not require to do so, but I am quite certain a very large proportion of the neighbouring farmers have adopted methods that have been found to be advantageous; and you may depend upon it that when once a farmer modifies his system in the light of scientific experience, his neighbours will be more likely to copy him than they will be to copy us; so that indirectly the thing has had a great advantage.

9041. I suppose the crops grown on the example plots are sensibly superior to the crops grown by the farmers about?—In some cases they are visibly in-

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ferior where we apply intentionally a manurial dressing that we consider is unsuitable.

9042. But where you employ the proper method of manuring, are the crops evidently superior to the crops grown by the neighbouring farmers?—The advantage mainly lies in this—that we show that for a very much less expenditure we get equally satisfactory results. The so-called high-class farmers can grow exceedingly big crops, but they do it very often in a most extravagant fashion, and we have demonstrated over and over again that by the expenditure of a very much less sum of money more judiciously, equally large crops, and very much more profitable crops, can be grown.

9043. In what respects chiefly were you able to bring about this saving?—Very largely as regards the relative proportions of the ingredients in the manure, and also as regards the aggregate of the quantities employed. For example, the ordinary practice in the North of England is to put on about twelve tons of farmyard manure per acre, supplemented by from five to ten and twelve cwt. of artificial manures. During the last five years in many hundreds of experiments we have never once come across a case where a large quantity of artificial manure put on the top of farmyard manure paid, and yet it is the universal custom of the district.

9044. Then the chief value of your teaching was to show that with a smaller expenditure on artificial manure properly selected, equally good results could be obtained?—Yes.

9045. Chairman.—Is not the great advantage of artificial manure on the top of farmyard manure in the case of turnips in drills, that it gives it an early start?—That is what we are being constantly told, but whether it does so or not, the final result is that the crop is scarcely any larger. Artificial manures alone may be used with the utmost profit if properly applied; farmyard manure alone is also profitable, but the combination of a big dose of dung and a fair dose of artificial is not economical. Of course the first year the farmer simply did not believe it, and said the plots we selected were unfortunate as regards the situation; the second, third, fourth, and fifth years were all alike, and as a natural result a great many farmers have begun to practice this improved system.

9046. I suppose your experience is that to use artificial manure alone in the long run would burn the land?—Oh, no. I think artificial manures may be profitably employed where farmyard manure cannot be obtained.

9047. Monsignor Molloy.—At the end of five years of your treatment, can you say that the land is in as good condition as it would be at the end of five years by the ordinary treatment of a high-class farmer?—Well, it is in a more profitable condition at all events.

9048. It is not exhausted?—By no means.

9049. With regard to the question of forestry, can you state whether any sensible effect has yet been produced by your teaching of forestry?—I have been engaged in teaching forestry now for eight years. I began in Edinburgh University in 1889, and I had classes there and at the Royal Botanical Gardens at Edinburgh; we also had practical foresters coming in. The way the thing is done there is that about twenty gardeners are required to keep the gardens going, and a system has been introduced whereby these men must leave after two years' residence in order to make room for a fresh lot. These men get 18s. a week as a regular wage and do regular work for eight or nine hours a day, and in the evening scientific instruction is provided for them, so that this is a scheme whereby practical working-men are able to get scientific instruction without sacrificing their wage. The system is found to work out well indeed, and the men who have gone through that course have, in many cases, secured good situations, and are undoubtedly managing their woods on an improved system.

9050. Chairman.—£1,000 a year provides wages for these twenty men?—That is provided by the Board of Works.

9051. Monsignor Molloy.—Have you yet produced any sensible effect on the counties of Northumberland and Durham?—It is hard to say that, because we have only tackled the practical course with the winter of 1896 and this spring; they only finished their course last week. A young forester I had in Edinburgh got a situation in Perthshire, and as a result of the instruction he got in the method of catching the pine weevil, in the course of three weeks he killed over 7,000, and practically saved his young plantation.

9052. Captain Shaw.—As regards agricultural teaching in primary schools, have you any experience of that?—No, I cannot say I have.

9053. Do you consider that a course given to children before they attain 14, which practically covers the whole of agriculture, is of any great use, I mean from a book?—One has to consider whether the time spent upon this book is as well spent or better spent than a corresponding amount of time at something else.

9054. Would you prefer instead of that that they should make practical experiments in elementary science?—I think practical demonstrations ought to go on concurrently with the schoolroom teaching. Book learning alone is apt to land one in rather a precarious position.

9055. In Ireland they have got a considerable number of farms attached to schools, worked by the schoolmaster, who also teaches the whole school. How far do you think they can be utilised for agricultural instruction, farms varying from 5 acres to 40 acres?—And they are attached to elementary schools, and the boys I suppose remain at these schools until they are about 14? In this case also everything depends upon the instructor, if he is a man of the right stamp he will interest the boys in the work, and the boys will do the work willingly, but I think it is a case of personal influence and individual character that will confer the benefit more than the system. In this secondary school at Durham, where we have started the plots, the boys are doing all the work. We are doing spade labour, and have arranged a rotation that will show them how to cultivate potatoes, followed by beans and other crops. They will apply manures themselves and ultimately dig the potatoes and other crops, will weigh them, and having thus, as it were, secured the results, they are bound to take a great deal more interest in those results than they would in results that they knew nothing personally about.

9056. Do you give them instruction at the same time in plant life?—That is what they are getting.

9057. Do you consider that is an essential part of the instruction?—I do, elementary science must necessarily go on with this practice or otherwise they are no better than a boy on his father's farm. I think the two things ought to go on concurrently. In the past there has been far too much theoretical instruction alone. Then there is the old school who say that science or theory is worth nothing, everything must be practice. I believe the safe course lies between the two, and that there should be instruction in science concurrently with instruction in practice, and the scientific information the boys will get will enable them to see a great deal more in the practice than they could possibly do if they stuck to practice pure and simple.

9058. In elementary schools instruction can only be given in an hour or one and half hours a day, I suppose it would be better to aim at thoroughly learning some of the elements than to try to cover the whole of a course of agriculture?—Yes, decidedly. It is scarcely necessary to call it agriculture at all, it is science having some reference to agriculture, the business of agriculture cannot be learned at school, it must be learnt on the farm.

9059. But some of the sciences can be learned if

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you have plenty of apparatus to illustrate it?—Exactly, if you can only get the right teacher.

9060. And that can be taught in any school whether it has a plot attached to it or not?—These plot experiments can be carried out with very little land, there are more difficulties perhaps in the way of plot experiments than people may imagine.

9061. You can get scientific knowledge of water, air, and solubility, and those things connected with agriculture which can be given without having land attached to a school?—Yes.

9062 And of course the instruction in practical entomology may also be easily given without having a garden, ground attached, and that would be the right direction in which to start agricultural teaching?—That is certainly a long way better than nothing, but I do think a fair area of land attached to a school would offer advantages that could not be secured from pot culture.

9063. Do you think an elementary school teacher has time to devote himself to experimental plot work, or should he be assisted by a peripatetic teacher or person with more knowledge?—I expect he ought to be supervised by a person with more knowledge.

9064. In your own case you actually come from a college of science to superintend these plots, and you find it a necessity even in dealing with grown up farmers?—Absolutely necessary. Unless we got the manures all into our mixing house under proper control and had them analysed, we could never be sure that the manures we supposed we were applying really contained the ingredients that the seller represented. And suppose one were starting these pot experiments the teacher would go to the manure merchant and obtain his manures, the merchant wittingly or unwittingly might not supply him with the thing he wanted, or for his own purposes might put something into the manures that was not wanted. Manure merchants have a great prejudice in favour of certain manures, and if the teacher were procuring the manures they might sophisticate them in order to bring out the results they wanted unless properly controlled.

9065. Does not the result depend to an enormous extent on the seed you start with?—Yes, in our experiments we put the same seed on the whole of the plots, for our manurial experiments, we don't care whether they grow green or purple or pink-topped turnips, the comparisons are only with the manures.

9066. You have plots in which you use the same seed with different manures?—Yes; it may be another experiment to test the different varieties of seeds.

9067. Rev. Dr. Wilson.—Is the agricultural department of the Durham College of Science attended by many pupils?—About fifteen

9068. Do you think is the number increasing—is it getting hold of the public mind?—I cannot say it is.

9069. You say that hundreds of teachers come out on a Saturday afternoon for instruction in botany and other things—do they pay their own expenses?—No; they get their travelling expenses paid by the County Council.

9070. You say that that system of 12 tons of farmyard manure to an acre, with 5, 8, or 10 cwt. of artificial manure is a very expensive thing—is it not a fact that sometimes the artificial manure neutralises the farmyard manure?—Yes, it acts as an antiseptic; it simply prevents the putrefactive process taking place in farmyard manure.

9071. Therefore your instruction on that point would be most valuable to farmers?—The farmers start with the notion that you cannot give a plant too much of a good thing; if artificial manure does well by itself, it must do well if added to farmyard manure they think. The most distinguished continental experimenter, Maercker of Halle, has been getting marvellous results by adding artificial manures, especially nitrate of soda, to farmyard manure; he finds the farmyard manure contains some bacteria which dissipate every particle of nitrogen in the nitrate of soda. He carries out his results in triplicate, but they are so startling he does not do more than state them the first year—if they come out the second year we are on the eve of a revolution in manuring.

9072. Would it not be important for us to get a similar institution in Dublin or Belfast to the Edinburgh Botanical Garden?—There ought to be no difficulty in getting it, because it is in vogue in Kew as well; the Edinburgh system is a copy of the system in Kew.

9073. The system seems admirably adapted to send out good gardeners and foresters?—It is a very good system; the man we have placed at our farm in Northumberland came from there—during two years he was getting instruction, and all the time working regular gardener's work during the day. He gets a good deal of instruction in arboriculture, and becomes familiar with all the different varieties of trees and methods of planting them, but he must get his practical forestry on estates where woods abound. Professor Balfour tried to affiliate the Royal Botanical Gardens with the State Forests in Prussia, but they could not see their way to do it.

9074. Mr. Redington.—Do you approve of a course of less than a year's duration at an agricultural college?—We have not tried it, but we are going to try it this year—a course for two months.

9075. What months have you selected?—October and November.

9076. What farm operations would the students be able to see at that time?—They are not supposed to see any; they are all farmers' sons, who are supposed to be well acquainted with practical agriculture, and they are going to come up to the college for two months.

9077. For scientific education?—No, not scientific either, you cannot do much in two months; we shall try to put a certain amount of empirical information into them; we shall be able to give them information of practical value with regard to manures and feeding stuffs, and lay before them the results of practical feeding experiments for instance.

9078. What is your idea of the proper duration of the course in an agricultural college for teachers of elementary schools?—I don't think it would be safe to let them loose on the country in less than three years.

9079. If that were impossible, would you not think that being for the whole 12 months at college would give them a better idea of farming than being there only for 6 or 4 months?—Yes, certainly, the longer the better.

9080. And if they could be only 6 months at a college, what months would you select?—Do I understand you to refer to elementary school teachers who are to be brought up with a view of applying the knowledge they get to their own schools?—I may say I did not understand that that was your intention, I thought you meant to prepare men who are qualified to act as instructors and advisory experts.

9081. I mean men who could teach agriculture as far as it can be taught in elementary schools?—Well, in that case less than 3 years would do.

9082. My point is as between a year and 6 months; we understand that at Penrith the course lasts for only 4 winter months?—They are not teachers there; they are the sons of farmers who are going back on their fathers' farms.

9083. They have selected the 4 winter months?—I think they selected more than 4 months, they join in October, and are there until the end of March.

9084. But it is the winter months?—Yes.

9085. If you were able to get them to come, would you prefer the 6 summer months or March to October?—Yes, if you are going to combine scientific instruction with practical instruction, distinctly so.

9086. Is there any great object in their going to this college except to get practical instruction?—If you are going to combine practical instruction with

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scientific, the summer months are the best, but the boys may be spared in winter when they cannot be spared in summer.

9087. Have you formed any opinion as to whether the principles of agriculture can be taught in an elementary school?—Yes, if by principles of it you mean elementary botany, and chemistry, and so on, applied to agriculture, distinctly so, if you mean to give the boys such instruction as will enable them subsequently to go into the market and purchase store cattle, I should say no.

9088. How far is instruction out of a text-book of value? If, for example, in the evening school you want to give the boys a little elementary scientific instruction in agriculture, would it be of value?—Distinctly so.

9089. Captain SHAW.—Without any experimental illustration?—Oh, yes, a boy cannot go wrong if he has got a practical foundation to build upon, and may be told as much as you can tell him; the dangerous thing is to try to teach agriculture to a boy who has had no practical knowledge; if he has practical knowledge to start with, he will not get upset by a good deal of so-called theory being put into him.

9090. Mr. REDINGTON.—Is it merely of negative value?—No, it is not, I know instances of young farmers who have attended evening schools who have received a great deal of benefit from theoretical instruction.

9091. Captain SHAW.—That would apply more to young farmers than boys?—Yes, but if you start the boys young enough they take a more thorough interest in it than if you don't start until later, and there is always the great danger of not getting them at all if you don't start young.

9092. Mr. REDINGTON.—Do you find it easy to carry on instruction by peripatetic teachers of dairying?—They have been a great success.

9093. There is great expense connected with it?—A great deal depends on the business capacity of the instructress. In the county of Durham there is an instructress who gets all the cream from Manchester, pays carriage on it, and makes it into butter, and sells it in the neighbourhood, and sells it for more money than pays for the cost of the cream and the carriage. But I could tell you other cases where it is not so satisfactory.

9094. I think you said the course lasted ten days?—Yes, sometimes we get facilities for staying on a farm for 6 weeks. Where we have the long course of 5 or 6 weeks, the work begins at 5 in the morning, with the milking of cows, and finishes at 8 o'clock at night by suppering them.

9095. Take the 10 days course?—The work begins at 9 in the morning, and finishes about 3 in the afternoon.

9096. Is it always held on a farm?—No, very seldom, because we cannot get a suitable building.

9097. I want to find out how it is carried on?—A local committee is formed, and sends a request to the County Council for a school, indicates the time, and that they are prepared to provide a room, and in due course the school turns up there; it is advertised; an introductory lecture or a demonstration is given; a great many people come to the demonstration who don't propose to enroll as pupils. The class consists of from 12 to 20 as a rule, and during the succeeding two weeks they make butter, practically, under supervision, get experience in separating milk, ripening cream, and making cream cheeses, and so on; they also get theoretical instruction in the properties and composition of milk, and possibly also a little in the management of dairy stock.

9098. Does the teacher show them how to make butter, and then get them next day to make butter themselves?—Yes, the first day the pupils usually don't take any active part in the work, but they do so subsequently every day.

9099. Captain SHAW.—Does the locality provide the cow?—Yes, in some cases; but for the short course the cream is all bought. The cream used in the Durham school comes from Manchester; we cannot get cream easily in the east of England.

9100. Mr. REDINGTON.—Are those courses very popular?—Extremely; in the county of Durham, the average is 2 courses in each village; one course does not satisfy them; the average has been 36 pupils per village. In the county of Northumberland, which is more truly agricultural, there has not been nearly such a demand, and we attribute the difference in part to the character of the instructress.

9101. At what periods are they in operation?—They are going round the whole year, even in the middle of winter.

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Mr. ARTHUR E. BERNAYS, H.M. Inspector of Schools, examined.

9102. CHAIRMAN.—You are one of Her Majesty's Inspectors of Schools?—Yes.

9103. Will you tell us what your district is, please?—The Cumberland district, including Cumberland, Westmorland, and the Furness district of Lancashire.

9104. With reference to the subject of our inquiry on manual and practical instruction, will you give us your experience as regards kindergarten in infant schools?—The system of kindergarten has been introduced into the infant schools since I first began my work as inspector, and I can certainly speak very highly of the effect it has had, both in training teachers, and in developing intelligence, and in giving the relaxation which was very much needed. Under the former system, reading, writing, and arithmetic were only varied with a little singing and occasional drill, and for little ones, kept two hours at a stretch, it was a very great strain, and resulted very often in over-pressure on young brains, and in a dislike on the part of the children to school. That has all been very much changed for the better. At the same time, I must say that the Froebel system in its integrity appears to me, under our present conditions in England, to be quite impossible, because, in strictness, there should not be more than 6 or 8, or, at most, 10 children for every teacher, to carry it out as Froebel wished it to be carried out. But I don't regret it should be so, because from what I have seen of it in most of the schools the carrying it out in its integrity is not desirable. First of all, the teachers, I don't think, are quite capable, even if sufficient in number, and secondly, the children themselves do not in my opinion make the same progress where they are left entirely to the organised games which Froebel advocates. The intermixture of kindergarten with the ordinary work, reading, writing, and arithmetic, is the best system possible, *i.e.*, as we see it in our schools, organised play combined with manual dexterity and the development of the imitative faculties. This is noticeable in stick-laying, where the child imitates exactly the motions of the teacher, holds the stick in the right hand and lays it exactly at the right angle, thus learning the habit of concentrated attention, and when young children have acquired that they can attend to the more difficult lessons. The elementary work itself is helped to a certain extent. I don't think kindergarten can help reading much, but writing is a form of drawing and a mechanical art, and the analysis of numbers

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can be learnt by means of cubes and sticks. So many four make eight, so many twos make six, &c. That is very valuable indeed, but I wish to emphasise especially the desirability of the gradation of exercises, which is a very important point and one very much overlooked. Some of the teachers who do not understand the system are really giving milk to grown up children by assigning unsuitable occupations to the older classes, as if they were of the same age as the little ones entering the school.

9105. In what respect can you alter it?—For instance, when children first enter at the age of four, they have stick-laying and ring-laying, which is very much the same thing; and possibly brick building in its simplest form should be for the babies, and the younger children between four and five years of age, together with one of the Froebel gifts, the use of the ball, showing the direction which the ball takes, swinging to the right, to the left, and round in a circle. This is very useful for little ones, but the older children feel it is merely a game and rather a foolish one. For the higher classes, those between six and seven (I am not dealing with standard one, which is not always in the infant school), these exercises would be suitable, paper-folding and clay-modelling, and for the first class stencilling, the shape being put upon a paper and the children going over it with a pencil. Then what I have recommended very strongly is the formation of scrap books; the pictures are very cheap, and it encourages great neatness and accuracy, and I think may be made very attractive if the books could be passed on, as they might be, to poor children in hospitals and other institutions. Now, coming to the other point, occupations, as they are called in senior schools, I think the Commissioners will be aware that owing to considerable pressure being brought to bear on the Education Department, they are no longer compulsory; but I think you will hear at Barrow that both the teachers and the Board feel they are of very great advantage. The occupations I have seen, which were originally confined to the three lower standards, one, two, and three, are mat plaitings of more elaborate patterns in paper and doormat-making, which I have only seen once, with an iron frame on which the strands were laid and forced in. This was only done by the older boys, it was a work they took an interest in, and was also the means of making a little money for the school. Then netting, which I have not seen adopted, but which I think would be desirable, and what I have seen a good deal of, designing and colouring, sometimes brush-drawing, and sometimes chalk, and the formal designs in which children advance from those set by the teacher to making their own patterns. These have been made, and very clever ones, even by infants.

9106. Did you see original designs in the first standards?—Yes, even among infants; and then basket work, the simple form, a little sort of pannier intertwining, is very effective, and they take great interest in it. I think many of these occupations, at least several of them, are to be seen at Barrow, which affords the best illustration in my district of these occupations carried out in their integrity. They form a relaxation, which is, I think, highly desirable for children, most of whom, even in the third standard, are only about nine years of age, and they are also the only kind of work in which some children can take an intelligent part. The sooner we recognise the fact that all children cannot be brought to care for books the better. I was talking to the head master of the grammar school here and he told me that some of his boys when put to do something with their hands are alive and active although they may have been very dull at their books: a child has thus a chance of excelling in one thing although he may be a dullard at others.

9107. Will you give us your experience with regard to cookery and laundry work in connection with domestic economy?—I think cookery is the one subject I should like to see introduced into all schools. I don't think I can emphasize its importance too strongly, and especially as bearing upon the temperance question and comfortable homes. The number of slatternly wives that are somehow turned out who make homes uncomfortable is very large, and we cannot do too much to show them not merely the cooking of dishes, but the managing of the house, and making meals comfortable for the husband when he comes home. There was a speech of the late Duke of Albany on the subject which, I think, ought to be printed in letters of gold, showing that the discomforts of some homes, and the difficulty of getting a meal are often such that the husband is driven to a publichouse; but I wish to point out what will be a difficulty in Ireland in rural schools, viz., want of sufficient staff and sufficient apparatus, for it is undoubtedly the case that to obtain the plant and maintain the plant is a serious expense.

9108. You are speaking of cookery now?—I am speaking of cookery. I think £5 at least is required to start the requisite plant, and then, of course, things are broken, and then comes the further difficulty of the teacher—the mistress; but what I suggest, and what has been carried out in Essex, where I was before, with good results, is that certain districts should combine for the purpose of employing peripatetic teachers. They could then get a certificated mistress, who would not otherwise come for a small sum; but who, with a number of schools to visit, would have a sufficient income to make it worth her while to be attached to a neighbourhood or district. That I would recommend strongly. Then from one's experience I would say that the dishes should be simple, and the plant, such as it is, not too elaborate; that is a fault we are rather falling into in England. We get a number of pots and pans which are not to be found in cottage homes; weights and measures are then introduced. I doubt whether you would find weights and measures in half the homes in Cumberland.

9109. Would it not be desirable to try and introduce the idea of weighing?—Yes; but the teachers are urged to show the children that weights and measures can be dispensed with by showing them, for instance, how much a tablespoon holds or a teacup. It seems to be useless to use apparatus which they do not have in daily life. The mistress shows an approximate measure. Then gas-stoves should be avoided. They are very common, and pressed upon people in towns; but they are not to be found in country places. At all events, if a gas-stove be used there should be an open fireplace with an oven as well to show the mode of dealing with an oven heated on one side, and then, as I said, the subject should go hand-in-hand with practical lessons in domestic economy. We have the latter given in many of the schools as what is called a specific subject; but the domestic economy taught in the school should bear its part and have a practical bearing upon the cookery taught outside the school or class room.

9110. Some of us have found that what they call domestic economy in one place consists in what you call housewifery, and in other places it consists in instructing children in the processes of breathing and digestion, that seems rather wide?—That is a point I would like to see eliminated. What is the effect of the gastric juices on the stomach does not seem to me to be of importance; the question is, how are you going to provide the food out of small resources and provide the most nutritious food. We have pictures of the insides of people all over the place now; very objectionable they seem to me, but the children have got accustomed to them.

9111. Have you anything to say with regard to laundry work?—I have had little experience, but it seems to me only possible in large centres, and in connection with that I may say that the directress of cookery, Miss Dean, reported very highly of the laundry work at Barrow.

9112. I suppose it is easier for a country girl to

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learn a certain amount of laundry in her own home than cookery?—Very often I ask them, for composition exercises, what they do on Saturday and the answer invariably is—"Helped with the washing"; in point of fact, that is the chief excuse for keeping them away from school.

9113. Have you anything to say with regard to the needlework and dressmaking?—I attach very great importance to needlework; that is really practical work, and not the mere teaching of little specimens without reference to the garments; these practice specimens which are shown to us should not take the place of real mending; that is emphasized in the Code, and wherever possible, where there is no epidemic in the place, mending should be brought to the school.

9114. We hear in Ireland that parents don't like the children to bring their ragged clothes to school?—I try to explain that we all require our stockings mended, and that I would bring mine if necessary. But they won't bring their things to school. Occasionally a mistress has kept a mending book in which she has recorded the work the children have done at home. The child thinks a good deal of being entered in this book, but mending in school should be insisted upon; and the cutting out of garments, which we have great difficulty in enforcing, is essential. The tendency is merely to please the inspector. The mistress practically cuts out the garments, and the children who should do so, in the upper standards, seldom really undertake the work. That we have found out in evening continuation schools.

9115. Do you find any difficulty in disposing of the things after they are made?—Not very great difficulty; in most cases the material is the property of the managers, and we encourage them as far as possible to buy the material, because if they do not, and the children bring their own, they will only bring such garments as the parents may want, and not such as the teacher wants for the purpose of teaching.

9116. We were told by some of our witnesses in Ireland that one of the great difficulties with regard to dressmaking was the difficulty of disposing of the articles made, because parents could buy, and preferred to buy, and possibly the children preferred to wear, clothes made in the shops. They could buy them cheaper than they could make the clothes themselves?—I believe that is true; they are disposed of in England only where the parents themselves have found the material.

9117. They work it off themselves?—Yes.

9118. But as far as disposing of anything for a money price there is a difficulty?—There is a difficulty, I think. What we have not at present, but what I would urge to be introduced into the higher standards and evening continuation schools is plain dressmaking; that we have not reached yet. The making of a few simple garments would be of very great service to the children afterwards, even though they can buy them readymade. I feel sure that they could make them at less price than they would have to pay in the shops. We have given up very largely the teaching of needlework to boys in infant schools, it is optional now; it used to be compulsory, but now they take drawing while the girls are taking needlework. I am sorry that is the case, and I cannot help thinking that a few lessons in the advanced school would be desirable; a good many may become colonists or sailors, without any knowledge of bachelor's buttons, and I am inclined to think a few lessons would not come amiss.

9119. Would not the boys feel insulted?—I daresay a few of the little ones would: it is only when I explain that older boys in a training ship have to learn to make a patch or put on a button, that they are reconciled, but still it is a difficulty.

9120. Will you tell us something about drawing and colouring?—The most extraordinary results have been shown since drawing was made compulsory, and unsuspected talent has been discovered in designing. I think it has been shown very clearly that if we have no other bond of kinship, there is one bond between the savage and the civilised man, that he has this innate talent the savage undoubtedly has, though we have for a long time ignored it. In the case of small schools everyone was trying to cry off on account of the difficulty of the matter, and inspectors felt they must put their foot down. Now drawing has become practically universal even in very small schools, the only difficulty being with regard to the inspection of it. At present we have an entirely separate class of inspectors appointed by the Science and Art Department, who are bound to go to every school and sometimes examine four or five boys. The grant has been as low as 1*s.* 6*d.*, costing £1 1*s.* a visit to the school, and now I believe the Science and Art Department is engaged in trying to alter the system and put the work upon the rather overburdened inspectors of schools. What is being asked for now by the teachers is that their certificate should cover everything, and it should be taken that a man who has a certificate from the Education Department including a drawing certificate should be considered fit to teach this subject, which should be included in the general curriculum. If I go to a school where drawing or singing is taught, and under the new system can take any subject here and there, that should be deemed sufficient without any inspection by any outside inspector. I must say the present system is most costly and sometimes perfectly ludicrous. Indeed it has been commented on by people who have seen the inspector driving in a carriage and pair a long distance to examine five boys.

9121. Mr. REDINGTON.—Has not every boy to be examined?—Yes, and the grant cannot be given unless on the report of the Science and Art inspector. I went to a school the other day in which all told they were only nine.

9122. CHAIRMAN.—Would not that apply to you as well as to the Science and Art inspector?—Yes, we try to avoid public expense by only going once.

9123. Captain SHAW.—Would that not also apply to large schools where there are a thousand to be examined?—Under the present system the money is not in any way wasted, as there must be an annual examination, but what the teachers say is this, and not unreasonably, that everything is included in their certificate except drawing, *i.e.*, music, drill, reading, writing, and arithmetic, &c., and that it seems extraordinary that one subject should be selected for formal examination.

9124. So far as the certificate is concerned there is no certificate insisted on for teaching drawing?—I think every teacher must have one of his D's.

9125. The D certificate is a qualification for teaching, but it is not a necessary one, and you will find a small number of teachers have it?—I think every new teacher is bound to have it, and will not be duly qualified unless he has it, but old teachers have been let off very easily, and a good many are not qualified to teach satisfactorily. Of course it is a matter of policy with which I have nothing to do, but I feel bound to point out how the case stands, as the question of expense must, I presume, be of considerable importance in Ireland.

9126. You don't approve of independent inspectors in any subject; you think one inspector is capable of inspecting every subject of the school?—I think it may be done in this way. I am personally not competent to give an opinion on drawing, but I have several members of my staff, ex-schoolmasters, who are quite capable of examining it, and if it were made part of the general curriculum, then one of my staff could visit the school in question.

9127. Then one of your staff would have to visit every school?—Not necessarily, he would do it in the day's march, that would be the difference.

9128. Mr. REDINGTON.—You mean while he was examining the school for other subjects he would include drawing?—Yes.

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9129. Captain **Shaw**.—What would happen with the schools he did not go to?—Occasionally they would have to put up with me. It might possibly be necessary to have a certain number of additional inspectors, but that is a different thing to sending one man to every school in turn in a scattered district like mine. I have heard some very strong expressions as to the cost. people have seen that with their own eyes.

9130. You may be arguing from the cost of a special inspector, which is hardly to the point?—Perhaps so; I don't know whether you have seen what the school teachers say on the subject.

9131. Mr **Redington**.—What makes the school teachers so anxious to save public money?—I think it is possible that they may wish drawing to be classed with other subjects, when, perhaps, it would not be so accurately done. It might have the effect of making drawing inferior. there is a risk of that I fully admit. We might not have as good drawing.

9132. **Chairman**.—Do you think you do get good drawing now?—Well, I have seen very little of it, I hardly know, except as to the kindergarten drawing.

9133. Does the drawing in the schools that answer to our primary Irish schools go beyond drawing from the flat?—There is a certain amount of drawing of solids, and there is geometrical drawing.

9134. As far as I can learn from the evidence we have had in Ireland, they practically only draw from the flat and without much perspective?—It used to be said that anyone who could draw a straight line would pass.

9135. The specimens I saw in Dublin seemed to be principally drawing candlesticks?—It is a good deal more elaborate than that in the higher standards. The curriculum, of course, does not come exactly under technical drawing, but I have seen in some of the schools in Essex some extremely good drawing from copies and partly coloured, matching and blending colours.

9136. Have you any brushwork; the colouring without drawing?—No, I have never seen any of that, my experience has been very largely in rural schools.

9137. Have you any experience in shorthand?—All that I have seen has been in evening continuation schools, but it certainly has taken very well there and has been very popular; there have been very large classes in some cases, but I have never yet seen it adopted in day schools.

9138. Where you have seen it taught do the children seem to take to it quickly and readily?—Yes, and like it too, but of course it is hard work: it is educative to a certain extent because the memory part of it is very considerable indeed. I should think that most people should begin early in life. I have heard a great number of lessons, and don't seem to get any further myself.

9139. Captain **Shaw**.—Is there not a great deal of memory in the exercises they do already in schools?—I am afraid very largely. I think we have already got too much instruction, looking at it from a purely utilitarian point of view. I don't think myself that the subject has very great educative value, and certainly if it is taught it should be done by trained teachers who have learned the system.

9140. **Chairman**.—You want to have somebody who knows how to teach as well as how to do the thing himself?—Yes.

9141. What have you to say with regard to repoussé and cardboard work?—Repoussé work is the hammering out of patterns in brass for all kinds of articles. This I have seen only once, but of course there is a very famous industry at Keswick, practically created by Canon Rawnsley. It is very successful there. I saw this work at an evening school.

9142. Do they work in leather at all?—No; I have not seen it in leather. I wished that evening they had done it in leather, because the noise was something deafening. It would be impossible in a day school unless they had a workshop outside.

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9143. I suppose practically it is not of much use unless the boy was going to continue practising it for an occupation afterwards?—Very little.

9144. It is more like teaching a trade?—It is; in fact that is the objection made against most of this work. The tradespeople say we are taking the bread out of their mouths.

9145. In what way are you taking the bread out of their mouths?—Teaching a trade at the public expense, and a trade which may be used by people who are not going into that particular line. They may adopt it in part of their leisure time. The cardboard work has not been considered educative, if there is such a word, and no grants are given for it in the evening school, for which I am very sorry.

9146. Captain **Shaw**.—Is it not recommended in the day school Code as a suitable occupation?—Yes, but in an evening school it was not paid for. The master said it seemed very unfair to him, as he had an opinion the very opposite, and certainly I have too. It is very simple, and creates great neatness of hand and accuracy of workmanship, far more than I anticipated. These boxes that we see everywhere are, I am told, made in Germany, and I do not see why we should not have a turn at them here.

9147. Have you had any experience of wirework?—No, I have not seen that. Iron work has also been tabooed by the Department.

9148. Have you any experience with regard to typewriting?—I have seen it in two evening schools. I don't think it is possible, except in higher grade schools and evening continuation schools.

9149. The typewriting machine is expensive?—Yes, and I feel clear it is of very little educative value.

9150. Is typewriting a thing that a person may learn in after-life?—Quite. You simply learn the method of fingering, and then it is merely a question of practice, and therefore its educational value is very slight. It is mechanical after being initiated.

9151. Now, perhaps, you will come to woodwork and carving?—I take it that the ordinary wood-carving, that is deep carving, is, of course, the best. You can have the best effect and the best work, but the more advanced work I have seen, practically involves sculpture. But where either of these is impossible fret work may be substituted with very great advantage. There the tools are simple, and with a fret saw you can produce very good examples. I think it has all the advantages we are anxious to obtain for the pupils.

9152. I don't think we quite follow what fret work is?

Captain **Shaw**.—It is cutting patterns in wood. You cut out a pattern in the wood with a special fret work saw and a thin piece of wood.

Monsignor **Molloy**.—And a very small saw.

Witness.—It is very much inferior to the other work, but I take it *faute de mieux*.

9153. Captain **Shaw**.—Do you recommend these as forms of instruction in elementary schools?—We have had some of the carving in some elementary schools, and Sloyd of course; many of the teachers have been sent to Norway and Sweden to study and get certificates, but why they have been sent so far afield I never could make out. I have not seen the work myself, but I feel confident from all they have told me that English carpentry would be a long way more useful than any amount of Sloyd. I am afraid, however, there would be no teacher in that case but the skilled artizan.

9154. As far as we could gather from a witness yesterday one of the main distinctions between Sloyd and what is done in England is that they do more of the round surface, and in the manual work in England there is very little of that done. They don't attempt the scooping out of articles?—I have seen (I think at Kendal) one of the teachers giving lessons in a little shed in the school yard upon *bona fide* English carpentry, and certainly it was very effective there.

9155. **Chairman**.—A practical English carpenter

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might be a very good carpenter and yet not be able to make a wooden spoon?—Yes.

9156. And we were told that in real Swedish work they confined themselves very much to curved surfaces?—I suppose they look at it more for the training of the pupils than for practical resultsexcept dexterity, whereas in English carpentry I think you get both; it is subjective as well as objective, but as I said I am afraid there are very few teachers at present except the skilled artizan, and he is not always a person who can maintain order.

9157. Captain SHAW.—Some thousands of elementary teachers have gained the City and Guilds certificate?—That is so, but I have not had the good fortune to have been in large centres, we have to put up with what materials we have here, and many of the teachers have not the qualifications that they have in London and other great centres.

9158. CHAIRMAN.—I see on your notes you have ambulance work; is that taken up in connection with elementary schools?—There was one word I wanted to say on that subject of carpentry. It seems that some sort of lessons would be advisable in the use of tools for what is called job work. I have been very much struck with that. If you break a pane of glass you cannot put it in, or the handle of the door goes wrong you cannot put it right, without sending for a skilled mechanic, and if people had some idea how to use a tool and to put in a screw or a handle those in out of the way districts would spend very much less and could do without skilled tradesmen. With regard to ambulance work that has been very effective in evening schools even among young children.

9159. To what extent do they do this? is it merely binding up a cut?—They put on splints and bind up heads and legs and carry on stretchers: of course a great deal of that could not be done with mere children, but I think the instruction in the use of bandages could be given without any difficulty.

9160. Are there any grants given for ambulance work?—Yes, in evening schools it is one of the subjects, and any subject under the sun may be taken in an elementary school provided the Department approves. We have physiology as a specific subject, but it is not, I think, of much value apart from practical application, *i.e.*, seeing how the bones lie in the arm or leg, applying bandages, and observing the slip of a fractured bone. I have seen this kind of teaching made of great use in an evening school, where a doctor was giving lessons.

9161. Come now to cottage gardening?—That I think I am right in saying has been already introduced into Ireland. I went to two schools in the county Derry where I saw it, and it is now gradually coming into vogue in England; in fact it has only lately been introduced into the Code. One or two schools here have adopted it, one with very satisfactory results, and the master assured me that many of the boys he has taught have got better situations on leaving school from the fact that they could do odd jobs in the garden, knew how to set potatoes and dig trenches. I think it is a most valuable exercise, and the only point I would emphasize is this that managers must not be niggardly in spending money, for the tools must be sufficient in number and of a suitable character. The mistake has been made of going to an ordinary ironmonger and ordering spades straight from him. In this case I speak of, all the tools were made to order in Birmingham, and of suitable weight for a boy. I think it would be found of great advantage in country places.

9162. Mr. REDINGTON.—Are you of opinion that the occupations which are taken up in the lower standards are of educational value?—Yes, most decidedly. I think they are where they are done *con amore*, where the teacher really takes an interest.

9163. Does it not depend very much upon the way the teacher teaches them?—Yes, they were in many cases merely done to satisfy the Department.

9164. In the rural schools do the teachers enter into the spirit of these kindergarten occupations?—They are now absolutely abandoned in country schools from want of staff. The Department made them optional, and since they were made optional they no longer exist.

9165. Captain SHAW.—Is it impossible for a single teacher to take the subjects?—I don't think so; they cried out before they were hurt. I was never more sorry for anything, as the children derive great pleasure from them.

9166. Mr. REDINGTON.—How much time used they give to it in the week?—I cannot say exactly, I suppose about an hour a week.

9167. What do you think would be the best way of promoting the teaching of cookery in rural schools, is it by educating the teachers or by having special peripatetic teachers?—It certainly would be better and simpler if the teachers could be educated, and would go and obtain certificates, but of course that involves a certain amount of initial expense; you could hardly call upon a mistress to do this, after she had been appointed. I think the managers of the schools in England would have to bear the expense of sending her for training.

9168. Would the teachers be willing to go to centres in the neighbourhood to learn cookery?—Yes, I think they would.

9169. So you might have peripatetic instructors who would come round and give lessons to the pupils, and at the same time give some extra instruction to the teachers?—That has been done in the case of drawing, especially in Roman Catholic schools: some of the nuns had no experience, and they have even gone to centres, or teachers came round, and so they have got their training if they have not got their certificate.

9170. As a matter of fact, in your district, in what way is cookery taught in rural schools?—In completely rural schools it is non-existent: when they are near a town they bring out a teacher. There is a small school close here that is taught by the mistress, but not with very good results, because there is a very narrow space for the purpose.

9171. Would it be possible to have a peripatetic teacher who would drive from school to school giving a lesson in one school in the morning and a lesson in another school in the evening?—Yes, if all the schools would combine and help towards the payment of her salary.

9172. Would the travelling expenses be great, suppose she gave one lesson a week to each of ten schools?—No, not if she chose her centre satisfactorily. Once you get a trap out for the day they usually don't make any greater charge. We find very often it is the best plan to take two schools in the day.

9173. Do you think that the instruction given in cookery, by a person whose whole time was devoted to it, would be better than if given by the ordinary teacher of the school?—I think so, the teachers are already somewhat overburdened in the country places.

9174. Is elementary science taught in the rural schools?—The term covers such a very large number of things.

9175. I mean object lessons in elementary science?—With experiments and appliances.

9176. Are object lessons in standards I to 4 generally given in rural schools?—The ordinary object lesson is given because it is now compulsory.

9177. Is it made of a somewhat scientific character?—Very little; our great difficulty is to get a few pictures or the commonest illustrations, we are always met with the answer that there is no money. I don't approve of any series of object lessons without supplementing it with pictures, &c., and the object should be chosen with a view to the apparatus they can get; of course it is very rare to find good experiments in these country places.

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9178. As regards the upper standards, have you anything in the nature of peripatetic science instructors?—No, nothing of that kind: in fact the line that is adopted very largely in my district is to do exactly what is required, and no more.

9179. But the teachers could take science up as a specific subject?—They could, and some of the more ambitious schools do so with very satisfactory results: all these things have to be done usually with one pair of hands.

9180. Is it your criticism on the domestic economy course in the Code that it is too scientific, and not practical enough?—I think there is good scope for practical work, but the theoretical side is emphasized to my mind too much: there is one course entirely on digestion.

9181. It appears both as a class and a specific subject?—I think it is as a specific subject that it is laid down more definitely.

9182. There is a course called domestic economy, and another called domestic science?—Yes.

9183. Which do you think the better of those two courses?—They elaborate very much in the domestic economy scheme; food and its functions are treated very elaborately in the books, and sketches are made of the insides of people, and then when you get the rules for health there is one course of books in which they advocate the children being nurses in all kinds of diseases, measles, smallpox, &c. But where I think it has a tendency to become theoretical, rather than practical, is as regards the functions of food.

9184. In the domestic science course there is a good deal of elementary science?—That we have never had.

9185. It is your opinion that laundry work is impossible in rural schools?—I think so.

9186. Is that on account of the cost of the apparatus?—Mainly that, and you are adding another expense, for there will be the payment of the teacher, unless the peripatetic teacher will be able to give lessons in laundry work.

9187. If cookery and laundry work were combined, and peripatetic teachers were engaged, you would not object to these subjects?—Oh, no, the laundry work, as seen in the home, is purely empyric; there is no scientific knowledge of the thing or what the best methods are; so I quite admit it would be a great advantage—I was merely afraid it would be impossible.

9188. As regards needlework, is it the fact that in standards 5 and 6 cutting-out is to be only in paper in future?—Yes; I have rather a difficulty in keeping pace with the needlework, they keep altering it so much.

9189. The words "and in material" are omitted?—In any class taking needlework, not as a class subject but as the ordinary curriculum of the school, for which there is only 1s. grant.

9190. Is not every school for girls obliged to take needlework?—Yes, they are; but it is conceivable that the work may be taught so that it is not sufficient for the grant.

9191. Does this change imply a lowering of the standard in order to meet the difficulty that it is compulsory for girls?—If needlework is taught under Art. 101 (C) they are taking two class subjects, this being over and above the ordinary work, and not taken as one of the subjects. Therefore the amount was reduced because of the extra work involved in class subjects.

9192. In standard 7 is cutting-out omitted also?—Yes; I am sorry to say cutting-out has been cut out.

9193. So the tendency of the Code is in opposition to what you are advocating, as you advocate dressmaking?—The framers of the Code do not think it is as important as I think it is; the parents are already saying that needlework is not what it used to be, and those who have servants say that the children cannot cut out the simplest thing.

9194. How many hours a week ought to be given to the teaching of needlework in girls' schools?—At least four hours a week.

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9195. Is that the usual time in schools?—I think it is where the inspector cares for it.

9196. You would think that anything over five hours a week would be excessive?—I think so.

9197. What is the use of boys knowing needlework when they have wives and sisters to mend their clothes?—If they have good wives and sisters. It creates a certain amount of neatness.

9198. It has some educational value?—I think it has, and after all, for little boys it is not a great degradation; I don't think the upper standards would quite tolerate it.

9199. I understand you to say that it would be a good thing that the inspector and his assistants should inspect the drawing of a school; is it a very desirable thing to have persons to inspect a school in a subject that they are not well-acquainted with?—No, I don't think it is, but there are so many of the staff that are competent to do so, that it could be arranged that they should visit these schools. Take the case of music. In a big school, I don't, as a rule, depend upon myself entirely, my knowledge is slight, and one of my sub-inspectors takes the music. So with regard to drawing in a small school where the study is not so advanced, I should feel that, with a little practice, I should be competent to know whether it was decently done, not for a special grant, but taking it altogether, *i.e.*, whether the school was being taught drawing as one of the subjects satisfactorily.

9200. There is a special grant for singing?—Yes, and what I do is this, in almost every school I ask the master himself to set one of the pieces we have in the prescribed book. You see at once if there is a breakdown in an interval, and you know the time of the passage.

9201. Is it not possible that some of the inspectors might have no ear for music?—Many are in that position, and have had to confess as much.

9202. Would it not be better, quite apart from the expense, to have a trained musician to inspect schools in music, and a trained artist in drawing?—There is no doubt about that; it is a question which is thought a great deal of here, but I thought that the same thing might be followed in Ireland to save expense.

9203. I may tell you that our inspectors do inspect in drawing, although many of them are not experts?—I want to make it quite clear that I am not venturing to lay down a policy, it is merely a personal opinion on the matter, and what one does here. The teachers advocate the covering of the whole by the certificate, that their general certificate should include drawing as well as all the other subjects.

9204. But still somebody would have to inspect the school in drawing?—Yes, but not in the minute manner in which it is at present done; it should be inspected on the same lines as all the other subjects.

9206. Rev. Dr. WILSON.—Have you many small schools in the rural districts in this part of England?—A very large number.

9207. Have you any minimum of attendance before you adopt a school?—No, it has been the rule that a School Board should not be established for two children. We had a case that was very nearly that. Two children asked for free places, and it was ruled that being so small a number they could not be granted. But we have them nearly down to two, we have them down to seven.

9208. CHAIRMAN.—In a separate public school?—Yes, with a teacher at £50 or £60 a year, and they get all the grants, and you have to see if the boys pass. On one occasion it was one solitary boy. In the old days it used to be, did 50 per cent. pass, and a colleague of mine who had to examine one boy, had to answer this question.

9209. Could not laundry and cookery instruction be united in evening centres attended by pupils from different schools?—I am afraid the distance would be

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too great for the children; many of them as it is walk two or three miles to school, and many of them don't go back in the middle of the day, but have their dinner in the school.

9210. Is there any difficulty in their doing that in England?—Except in very bad weather; the real risk is getting wet and having to sit in wet clothes, but they are now getting the means of drying clothes in the lobbies of some schools.

9211. Monsignor MOLLOY.—You distinguish two kinds of kindergarten, one for infants and one for more advanced pupils?—Yes.

9212. And I think you said that the more advanced course which you call occupations, has been recently dropped because it is no longer compulsory?—That is so.

9213. Do you think that a great disadvantage for the education of the locality?—I do distinctly, with just that proviso that I made before that the teacher wishes to do his or her best in the matter. I think if they are purely perfunctory they might be quite useless, but properly taught they are very effective and a great advantage to the children, as I think the Barrow School Board will tell you.

9214. When woodwork is taught, what are the standards in which it is taught?—It would only be in the higher standards, 4th, 5th, and 6th.

9215. Then in that case, when you have not the occupations of the kindergarten, there is a great gap in the manual training of your pupils between the kindergarten of the infants and the manual work of the advanced pupils?—Yes. That is a very serious drawback.

9216. And you think it would be of great advantage to have manual work carried on through all the stages?—Most distinctly.

9217. Is drawing taught in connection with woodwork in those schools where woodwork is taught?—Not as bearing upon the woodwork.

9218. The drawing is a thing apart?—Yes, but drawing is treated here entirely apart from the general curriculum; it appears on the time table and that is all.

9219. It is principally taught in accordance with the Code of the South Kensington Department?—Entirely, and the hours are prescribed.

9220. Captain SHAW.—It is absolutely necessary in connection with woodwork that drawing should be taught in connection with it.

9221. Monsignor MOLLOY.—You mentioned that some teaching is given by object lessons; do you consider a picture an object?—I think I do.

9222. Because you mentioned that you found it difficult sometimes to get the picture?—I think, failing everything else, one must have a picture. Take a difficult subject, the sea, for instance; to people at an immense distance from the sea, I think a picture gives a very fair representation.

9223. But where you can have objects themselves, should you prefer the objects to the pictures of the objects?—Yes, certainly, that is recommended. I think you will see in a very admirable circular of the Department on the teaching of object lessons, it is pointed out that those upon plants should be given in their seasons.

9224. Was I right in supposing you would recommend that the girls in the upper classes should be taught to cut out and make dresses?—Certainly, cutting out and simple dressmaking, wherever it is practicable; one is obliged to put that in, because the difficulty of the time and staff is so serious with us. I don't know how it is in Ireland, but we have a large number of schools in which the teacher is absolutely alone, and there it is not practicable.

9225. But where it would be possible to establish a centre accessible to the pupils of several schools, should you think such a centre desirable?—Yes, and in some rural places that is possible, *i.e.*, large country villages, but in purely rural places it would be impossible.

9226. CHAIRMAN.—I suppose there are places in the Lake district under you that are quite as rural as any place in Ireland?—Yes, the school I was at yesterday; I cycled to it on a good road, but it is 11 miles from a station; there were 9 children in the school.

9227. Monsignor MOLLOY.—You said a difficulty would be to dispose of the garments when made?—That is a difficulty, unless the material is supplied by the parents.

9228. We found in London that they have got over that difficulty, because the children are willing to take all the garments at the cost price of the materials?—And there is not the difficulty mentioned that they prefer to buy in the shop.

9229. They have got beyond that stage; that objection was made in Ireland. You inspect, I suppose, both the Board schools and voluntary schools?—Yes, all classes.

9230. Does your evidence apply generally to schools of all classes?—Yes, certainly; the Board school in a country place is quite as impoverished as the voluntary school; it is more difficult with a small Board school to get anything done, because the farmer is simply inert, he will do nothing. The voluntary manager, as a rule, will get money from his friends and subscriptions, but a Board won't increase its rate for anybody.

9231. Then, in your district, do you find the voluntary schools are more ready to take up these extra subjects than the Board schools?—No, there is no distinction in that respect between the voluntary and the Board schools. Those that take up the extra subjects are those who have the pecuniary means and a better teaching staff.

9232. The voluntary schools can only have that by collecting it?—Yes, except that the more subjects they take, the higher the grant up to the 17*s.* 6*d.* limit, which has just been abolished.

9233. Captain SHAW.—You mentioned that laundry work was impossible; does it require either more expensive fittings, or more room than cookery?—I ought, perhaps, to have qualified somewhat what I said. I meant that supposing cookery be already started, it is adding, probably, another room.

9234. If you want to teach it under similar conditions to that in which it is taught in the homes of the children, they generally do their washing in the kitchen or scullery?—Yes, you would have to have more of a range than you have in most schools. In country places there is only one room to begin with, or else a tiny class room. Why I used the word "impossible" is this, that except by the help of peripatetic teachers, I don't see how another subject is to be added to the curriculum.

9235. Then the impossibility is not on account of the fittings or expense, but on account of the difficulty of providing teachers?—That is the main point.

9236. Then as regards the wood-carving and fret work, do you recommend them as superior forms of training to the ordinary manual training now given in England, training in woodwork and carpentry?—What I thought was this—I wanted to emphasize the importance of English carpentry, which seems to me to be in abeyance altogether, and to suggest that instead of wood-carving, which involves a good many tools, fretwork could be done with nearly the same educative results and less cost. I am afraid I have approached it very largely from that point of view. The cost is before me every day.

9237. As regards this cardboard business, it has been stated that the Department did not approve of it, are we right in taking it that the circular at the end of Instructions to Inspectors, dated 17th March, 1896, is still in force?—That is in force.

9238. Let me read some of the extracts from it. "An occupation ought to satisfy several conditions. It must be educative, and should especially stimulate independent effort and inventiveness"?—Yes.

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9239. "3rd. Manual occupations satisfying these conditions are modelling in cartridge or cardboard paper"?—Yes.

9240. In paragraph 4 D. "As an exercise in accurate measuring cartridge paper or cardboard modelling leaves little to be desired. This work is an excellent training in exact measurement and in cutting true to measure, and it furnishes an elementary notion of construction. This kind of work lends itself readily to the illustration of instruction in simple geometry"?—Yes. In one evening school I told them to write for a grant, and it has been refused on the ground that this very work is not educative.

9241. Chairman.—Perhaps they drew a distinction between advanced pupils and junior pupils?—Yes.

9242. Mr. Redington.—Are the evening school pupils of different standards?—They might be of any age.

9243. It might be suitable for younger children and not for older children?—Most of the children doing it were actually scholars in the day-school. At the same time they were making articles which one constantly sees for sale. I don't know who makes them, but I should think they were made by adults. The point evidently is that this kind of work is not considered suitable for older scholars.

NINETEENTH PUBLIC SITTING—SATURDAY, APRIL 3rd, 1897,

AT 1 O'CLOCK, P.M.

Newton Rigg.
April 3, 1897.

At the Farm School, Newton Rigg, near Penrith.

Present:—The Right Hon. the Earl of Belmore, G.C.M.G., in the Chair; The Right Hon. C. T. Redington, M.A.; The Right Rev. Monsignor Molloy, D.D., D.Sc.; Rev. Hamilton Wilson, D.D.; Professor G. F. Fitzgerald, F.T.C.D.; Captain T. B. Shaw, and J. Struthers, Esq., B.A.,

with J. D. Daly, Esq., M.A., Secretary.

Mr. William T. Lawrence, Agricultural Lecturer to the Cumberland County Council, examined.

Mr. W. T. Lawrence.

9244. Chairman.—In the notes you have given us you describe yourself, I think, as lecturer, teacher, inspector, and farmer, all rolled into one. Will you give the result of your practical experience in agricultural work? First, your views of peripatetic lecturers?—My experience in Cumberland for about 4 years lecturing is this, that a course of lectures is not of any great value to the farming community, but peripatetic lectures have very great use in awakening an interest amongst the farmers themselves, and showing them the lines upon which useful information can be given to their sons. I think that where it has come in as immensely useful is in the encouragement it has given to their sons to avail themselves of opportunities for getting education on agricultural matters of a more thorough and systematic character. There are some subjects that are still well sought after, subjects that lend themselves to one lecture, such as manures, feeding stuffs, grass seedings, those are always asked for, and are well attended; and there the ordinary farmer himself picks up the information he wants. I have had numerous letters on the subject of suitable manure dressings for crops. At this time I am getting a lot of letters for grass seedings for certain kinds of land, the best for laying down for two or three years or permanent pasture, showing that farmers are anxious to get information on matters of that kind.

9245. How many centres do you give lectures at?—I have not been giving lectures at centres. This way has been followed in Cumberland: at the beginning of the session the local committees, for there is a local committee in every parish, apply for lectures, one, two, three, or more, and name the subjects that they would like lectures on, and it is only to those places I go.

9246. Are the committees got up for the occasion only?—No, these committees are the Technical Education Committees.

9247. And from time to time they invite you to give lectures?—Yes, at the beginning of the session, and I go to those places as far as my time will allow.

9248. Are there many places you visit in Cumberland?—Yes, until this winter, and this winter I have been fixed pretty much here, but I have given from 100 to 120 lectures, from October to May, in other years. Poultry lectures always do well, and bring large attendances; that is a subject that in two lectures a fair amount of valuable information can be given.

9249. What have you to say with regard to these continuation classes?—From the agricultural point of view, of course, you mean. I used to think a good deal could be done in the day schools, in the way of elementary agricultural education, but I have come to the conclusion now, that the most valuable work that could be done in the day schools to aid it would be by simple object lessons on how plants grow, elementary botany in fact, and then encouragement given for children to make collections of grasses and label them, and the common weeds they find, and the miscellaneous herbage of the pastures, and in several cases I know that has been done in Cumberland, and the children have been very keen on it

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indeed, and made very good collections too. It is getting some of the real information they actually want, and I am sure that would help any course they would follow in the continuation classes after they left the school. In the continuation classes agriculture, as a distinct subject, has not been a great success, but the subjects that are associated with it, such as mensuration and elementary chemistry, where those matters have been taken up, have a valuable indirect bearing on it, but I don't think our continuation schools have been of very great benefit to that particular industry.

9250. Have you evening classes under the Science and Art Department of a more advanced character than the other classes you have been speaking of?—Yes; and there again to a large extent the same thing holds good. I think the allied sciences to agriculture, such as botany, which unfortunately is not often taken up, chemistry and animal physiology, are the subjects that turn out to be most valuable even from an agricultural point of view. There is a good deal of prejudice against agriculture when it is taken up, because schoolmasters are generally the teachers, and farmers and even young fellows that are engaged in farming think "what can the schoolmaster teach us about that sort of thing?" But if it is a chemistry class, or a botany class, then they have not the same prejudice against it. I have thought for long that there should be a special course of chemistry, just agricultural chemistry, which should be taught as a distinct subject as a foundation for agricultural education.

9251. Have you as yet any Saturday classes for teachers in the principles of agriculture and the sciences bearing on the subject?—Yes. For three years we had classes in the principles of agriculture, and there were classes before I came here too, and they were successful classes.

9252. Where were they held?—Carlisle and Whitehaven.

9253. Are there any migratory dairy schools?—Yes, we have one under the Cumberland County Council. It had two in its earlier history of technical education, that is five years ago, and each year since there has been a migratory school.

9254. Is that for Cumberland alone? you don't join Westmorland?—No; Westmorland has its own or had, and that on the whole is a great success, and it is making itself felt too in the improved butter that is being made. At one time pupils were afraid even when they made the butter on the system taught, to introduce it into the market made in the brick-shaped blocks, and now you cannot go into any market town in Cumberland but you see the butter made up that way; not that that particular pattern is a guarantee that it is made by any special method, but still it shows there has been a prejudice broken down. I was asked at the Keswick Agricultural Society last year and the year before to act as their butter judge at the agricultural show. The year before last there were very few that sent their butter in by the method that is being taught in the migratory dairy, but last year the large majority—and there was a very large show of butter sent in—made up in that form and were very successful as prize-takers.

9255. Professor FITZGERALD.—And was the butter improved?—Excellent butter.

9256. CHAIRMAN.—Could you give us shortly some account of the farm school and experimental station where we are; I don't know exactly how you describe your office here?—Manager The farm was taken by the County Councils of Cumberland and Westmorland; really by Cumberland, but Westmorland is contributory, a year ago, the 2nd of February last. But they did not get into work and get any school on the farm or really have it in their own hands until about April, so that we have practically been here at work about twelve months. It was taken for the double purpose of being an experimental farm, moderately experimental, and at the same time to be a suitable school for farmers' sons in the winter time. Working farmers' sons were the class it was intended for more particularly, those that could not be spared from work in the summertime, and for girls short courses of six weeks during the summer. Our experimental work, which we were able to begin at once, was with turnips. We laid them down in experimental plots. We grew five different kinds of swedes, each on a separate acre, and each acre was divided into four, and each quarter acre was dressed in a certain way, one with farmyard manure alone, another with a particular artificial manure, another with another particular artificial manure, and the fourth with half dung and half artificial mixture: that was repeated with each kind of turnips, and we weighed them at the end.

9257. Which did you find most successful?—There was very little difference all the way through: as the crop was growing there was very little to notice different; there really ought not to be much difference because the mixtures taken were of equal money value except the dung.

9258. Did you find much difference between the size and quality of the turnips grown with the dung and those grown with the artificial manure?—Not at all: our plots demonstrated quite plainly that as large and sound and good a crop could be, as far as we could ascertain, grown for 28*s.* 8*d.* an acre with artificials as could be grown with thirteen tons of moderate dung, not particularly good, and we found that half that quantity of dung and half that value of artificial manures grew rather a better crop, and that was consistent right through, and that is a common practice that is followed in Cumberland, that is, that half a dressing of dung and half a dressing of artificial is most satisfactory. We put a full dressing of artificial just as an experiment in one odd place, on to the half dressing of dung, and there we did not get much better results: it did not pay for the extra artificial used.

9360. Did you find that thirteen tons of manure, if you were using no artificial, would be sufficient?—Yes, that means twenty loads with us: that would grow a full crop of swedes.

9361. Your carts are bigger than our carts in Ireland?—That may be so, therefore it is best to speak of its weight, but it is not a big load, thirteen cwt. of dung, and that is really what it comes to. In all our other crops too we left one plot unmanured. For instance, in our corn and in our hay we left one plot unmanured to see the effects of the manuring, and on the seed hay it was very marked indeed, but in the meadows we had a drought following the application and we got no benefit of it, but in the aftermath, commonly called the fog, it was of very much better growth.

9362. If you broke up a field of lea that had been sometime out and were going to grow oats in it, do you think you would get a better crop by getting some artificial than by merely using it without artificial?—We did exactly that and the result was that we got a nice standing crop where we applied no manure, and where we applied manure we got too heavy a crop, and it laid.

9363. You got more straw?—Yes, unquestionably, but I don't think after lea on fairly good land, in the light of what we did last year, that it would be wise to manure on the lea, because there is a considerable amount of organic matter ploughed into the land which ought to come into play and produce a good oat crop, because oats revel in a vegetable soil and get it to perfection here, the grass seeds being left down for three years, but this year instead of manuring the whole field and leaving one acre unmanured, what one will do for the sake of experiment will be to manure the small part and leave the whole of the rest unmanured. Then, besides our crops, there have been some experiments in feeding our dairy cows for the production of milk and also feeding the Irish heifers you saw just now. In all our experimental work so far, we have token the results of the large amount of experimental work that has been done in the past as a sort of general starting point; we have not commenced to use nitrate of soda alone, and superphospate alone, and kainit alone, to see what they will do and will not do, because that has been thrashed out thoroughly, we regard the proper way to make experiments now is upon broad lines, well laid out, and play upon the variations that can be made on those lines, to see where saving can be made. We are putting a little more or less of nitrate of soda, and a little more or less of superphosphate in the mixture, and seeing where the difference comes in. Again, in planning cows' rations, I took for granted that a cow's food should have an albuminoid ratio of 1 to 5½. The German, American, and English experiments have all agreed that that is about the nutritious standard of the diet for a dairy cow, and in making our mixtures we have just planned our ratios to that standard, and then have noticed what difference has resulted from the different individual foods that have been used.

9364. Have you had any field experiments on ordinary farms?—Yes, we have twenty-six now in Cumberland at work, we have eighteen meadows in experiment. This is the third year they have been under treatment; they are divided into two classes, and then we have five rotation experimental plots, that is, five acres of land is taken on a farm, and it is under treatment through the whole of the rotation for five years.

9365. Do the farmers give the land for nothing?—I daresay where they are land-owners they will; but our committee decided that for the hindrance and general inconvenience, and extra labour they would be at, they would offer them 15s. an acre for the year.

9366. We had some evidence from Northumberland yesterday, and we learned there that the farmers gave the land for nothing; they also gave the seed and are the proprietors of the crop after it is grown, but the County Council finds the manures?—Yes, that is the system; in fact, we are working under Dr. Somerville.

9367. Mr. Redington.—I think you said that the best way of teaching agriculture in the schools would be to teach simple object lessons and elementary botany?—Or take up elementary chemistry.

9368. Do you think that the teacher would be sufficiently acquainted with botany and agricultural chemistry to be able to give those simple object lessons?—As a rule he may not be, but attendance at teachers' classes would equip him for that.

9369. How would he got that knowledge—would he have to go to centres at which lectures are given?—Our County Council have had teachers' classes both for chemistry and for principles of agriculture.

9370. So in a short time a good many teachers would be competent to give that instruction?—A good number are now.

9371. Would you advocate the use of a text-book, or put a text-book into the hands of children?—I don't think that is the most valuable way of imparting information; I think in the way of object lessons and making it as practical as possible in the way of making collections.

9372. In what standards of the school would you give this instruction?—I think it might be taught in standards 5, 6, and 7 very easily.

9373. Could not most of the young boys in country districts leave before standards 5 and 6?—Not in Cumberland. I don't know a school in which they leave under standard 5.

9374. Then you think it essential that the pupils generally should get some of this elementary instruction in science?—Yes, I think with a view not to the amount of information you give them so much as to whet their appetites.

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9375. Captain Shaw.—You have been an elementary school teacher for some time yourself?—Yes.

9376. You know pretty well the style of child and how much they can acquire in this school?—Yes.

9377. Rev. Dr. Wilson.—I would like you to state what are the feeding stuffs you would give to dairy cattle during the winter?—We give four lbs. of decorticated cotton cake, meadow hay, and three stones of turnips.

9378. At what hour of the morning?—They have their first feed at six o'clock before milking commences; then that diet was changed, straw was substituted for half the hay, and four lbs. of oats went with the straw. Now we are running short of turnips, and to give a food that will act in the same way upon the cow, and keep the cow in soft condition without much turnips, we are making a bran slop, three and a-half lbs. of bran stands in the place of one lb. of cake and twenty-one lbs. of turnips.

9379. Chairman.—Do you give the cows cake as well as turnips?—Oh, yes. There is no home-grown food except beans and peas, which are not grown in Cumberland, that you could give a dairy cow in the winter to make her do her best. Oats is one of the best foods in existence, and hay is a good food.

9380. Rev. Dr. Wilson.—What is your feeding stuff for stall-fed cattle?—They have straw and one foddering of hay in the middle of the day; straw the first thing in the morning and half their turnips, 1½ stones each, and then they get 4 lb. of linseed cake and some crushed oats, and the remainder of their turnips and straw at night.

9381. About your calf-feeding, how long do you keep them on their mother's milk?—They have their own mother's milk for a week; then half new milk and half separated milk for a week; and after that they get the separated milk, fortified with a little boiled linseed, and they get a little hay.

9382. How long do you keep the cream before you churn it?—We never keep our cream more than half a week. All through the winter we churn twice a week, and in the summer time, even if we were not churning every day with pupils, we should churn at least three times a week, although, perhaps, we should not send our butter into market more than once.

9383. Have you any special way of preserving your manures?—At the present time the only means we have is to use peat moss litter along the drains in the hyre and the stable, and, except in a very rainy time, we are able to arrest all the liquid; but I believe that our governors contemplate building a covered midden and having a tank to collect all the liquid manure, and then for that liquid manure to be pumped over the tank in the midden to keep it sufficiently moist and cool from heating.

9384. Chairman.—Is there anything you wish to add?—I was just thinking that I had said very little about our school. We had eight young fellows here, quite of the sort that the governors wished to have—working farmers' sons, that were working as their fathers' ploughmen, and so forth—from the beginning of November, for four months, and they were very keen indeed on the opportunities offered them, and worked very hard, and got through a lot of work, quite as much as we expected.

9385. Mr. Redington.—Did you give them lectures on scientific subjects?—Yes: and of course they helped in all the experimental work of the farm—the milking and foddering of the cows, and so forth. They did not do anything in the way of ploughing; they do enough of that at home.

9386. Mr. Struthers.—What is the fee charged for the dairy school?—Ten shillings a week, the same as in winter; but then they are only here for six weeks. That covers board and everything.

9387. Mr. Redington.—What do you charge the young men?—Ten shillings a week.

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Newton Rigg.

April 3, 1897.

Mr Frederick Punchard.

Mr. **Frederick Punchard**, Chairman of Committee of Governors of Newton Rigg Farm School, examined.

9388. **Chairman.**—I think you are Chairman of the Committee of Governors of this school under the County Council?—Yes. The scheme originally was that the two counties should join in the farm; but it was found there was no legal authority for the two counties to take land conjointly, so ultimately it was agreed that Cumberland should take the farm and Westmorland should contribute a portion of the capital and working expenses of the school.

9389. Perhaps you would give us in general terms anything you think would be useful to us?—We are hoping to get the farmers' sons here directly after they leave school; and, speaking for the Westmorland County Council when the Technical Instruction Act was first put into operation, we were very anxious indeed that the agricultural interest should have their share in the benefits, and so we suggested various methods, and a system of peripatetic lecturers and a travelling dairy school and two or three other systems; but we very shortly came to the conclusion that the peripatetic lectures would not do, for the simple reason that the farmers did not appreciate them. They did not value the instruction, and very soon got tired of attending.

9390. Mr. **Redington.**—They were not scholars but farmers and grown up people?—Yes. Then we thought that probably it would have to result in our teaching the farmers' sons as soon as they left school, with an eye first of all to the continuation school, and so we established classes for the instruction of schoolmasters, paid the schoolmasters' fares to attend the classes provided they went through the examination, and got grants from South Kensington. That was with a view of their ultimately taking the continuation classes in their own districts.

9391. Was instruction given to those classes in agricultural chemistry and botany?—Yes; they went through what is known as the principles of agriculture as defined by the South Kensington Department.

9392. Have you ever tried the scheme of having peripatetic lecturers?—No; I did once think that could be managed, that we could have got four or five townships to join in one lecturer, who could go to one school one day and another the next day, but that has not been taken up at all.

9393. Do you think it would be an advantage to have the principles underlying agricultural chemistry and botany taught in the elementary schools by the ordinary teacher?—That is what I am hoping we shall get to.

9394. And by object lessons mainly?—Yes; and I was hoping that will encourage the young men to come here and finish. I look on this school as a finishing school for the practical farmer.

9395. At present there is no such instruction given in elementary schools?—Yes; you will hear next week of one or two where they have started it only quite recently.

9396. Professor **Fitzgerald.**—Then as I understand, the attempt to teach agriculture in the schools was a failure?—That was never carried out in schools.

9397. But you tried teaching the teachers?—That has not been a failure so far as teaching the teachers is concerned, because they have attended very well, and are prepared to go on if they can only get the students. A great many of the country schoolmasters have gone through our classes, and are now ready to instruct classes in continuation schools.

9398. But no attempt has been made to introduce agriculture into the day schools?—No.

9399. And you don't think that would be satisfactory?—No; I don't think you can do it except in a continuation school; I don't think the other managers would agree to agriculture being introduced into the regular course of instruction.

9400. But you think they would be willing to introduce a system of elementary science and object lessons?—In the evening school, but not in the day school.

9401. Mr. **Redington**.—Would you approve of it if they agreed?—Oh, certainly; I am very anxious it should be so. I have more faith in that than their teaching Shakespeare or Milton.

9402. Mr. **Struthers.**—Have you any idea why they object to its being taught in the day school?—I take it, it is not in the Code and there is no grant for it; it is only in the evening.

Mr. **Struthers.**—It may be taken as a specific subject in the day school.

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TWENTIETH PUBLIC SITTING.—TUESDAY, APRIL 6TH, 1897,

AT 11 O'CLOCK, A.M.

At the Town Hall, Kendal,

Kendal.
April 6, 1897.

Present:—The Right Hon. the EARL OF BELMORE, G.C.M.G., in the Chair; His Grace the Most Rev. W. J. WALSH, D.D.; The Right Hon. C. T. REDINGTON, M.A.; The Right Rev. Monsignor MOLLOY, D.D., D.SC.; Rev. HAMILTON WILSON, D.D.; Professor G. F. FITZGERALD, F.T.C.D.; Captain T. B. SHAW; and J. STRUTHERS, Esq., B.A.,

with J. D. DALY, Esq, M.A., Secretary.

Mr. GILBERT GILKES, Chairman of the Committee on Technical Education, of the Westmorland County Council, examined.

Mr. Gilbert Gilkes.

9403. CHAIRMAN.—You are Chairman of the Technical Instruction Committee of the Westmorland County Council?—Yes.

9404. I think you can give us some information as to the special conditions that exist as regards technical instruction in rural districts?—My lord, I would say with regard to rural districts, that although in large centres, with large grants, special regulations may be made, in rural districts where the population is sparse, it is doubtful in my mind if work can be carried on so well independently as it can in combination with some general educational body. A large part of the labour and the expense in connection with work of this kind is incurred in arranging that the work shall be done on such lines as are admissible in dealing with public monies and in the necessary inspection, and in our county we have rather steadfastly adhered to the plan by which we avail ourselves of the existing systems of the Science and Art Department, because the means at our disposal—some £1,700 a-year—we feel to be too small to enable us to institute any organisation of our own independently.

9405. Will you elaborate that a little, please, as to how one works in with the other?—It is necessary to have some understood qualification for the teachers; in administering public money it would be almost impossible to judge exactly between the various teachers in various parts unless we had some common standard to which they were to be brought. The Science and Art Department fixes that by granting certificates, and only teachers of a certain status of efficiency, with certain qualifications, will be allowed by them; the thing is not very easy to be approached all at once.

9406. When you say teachers, what teachers do you mean?—The teachers in the various schools that have been established through the county.

9407. In the primary schools?—In the public elementary schools.

9408. What we call in Ireland primary schools?—Yes, not the teachers under the Educational Code, but the teachers in schools established in connection with those schools, principally in the same rooms,—the country schools that are started and paid for or helped from our funds. We must have teachers who are recognised by the Science and Art Department, and one of the reasons that we ally ourselves with that Department is that there shall be no question as to what shall be considered a proper standard. Therefore, we fix the standard of efficiency that shall be recognised by the county by allying ourselves with that Department. We don't form ourselves into a separate body, with certain rules, but we say we will use the existing organisation of the Science and Art Department, South Kensington, in fixing all these things for us, for the money is so small here that we feel bound to make every district contribute its quota. We don't maintain schools, we only aid them from our County Council funds.

9409. I don't quite understand as regards the position of these teachers with regard to the schools; where do you get them from, to begin with, and are they teachers only of the particular subjects that are in connection with your work?—Yes, they are teachers only of these particular subjects, so far as we are concerned with them.

9410. They are not school teachers in the ordinary sense; they don't teach in the schools as schoolmasters?—Yes, they may teach in the schools as schoolmasters; some of them do, but so far as they are connected with us, it is immaterial to us whether they are schoolmasters or not.

9411. Some of them are schoolmasters and some are not?—That is so.

9412. But they are additional masters?—Yes; this is for extra work taken up outside the limits of the Educational Code work.

9413. Where are they trained as a rule?—We had schoolmasters' classes for them in Kendal, and at the present time there are arrangements, which I will speak of under another head.

9414. Then I won't anticipate it, only we want to get at where those additional teachers are got from?—Perhaps it would be convenient to the Commission if I were to give a short account of how we began the work, for we are striking rather into the middle of it at this moment. When it was found we could have money from the Customs and Excise Act in 1890, it was decided by the Council to appropriate that money wholly after the first year to the purpose of technical instruction in the county. We had no knowledge what demand there might be for technical instruction, and so we asked the Science and Art Department to send us an organising lecturer. They sent down Mr. Buckmaster, and he made a tour of the country, lecturing here and there, as did Mr. Bateman and one or two others. We went round trying to stimulate interest in the work. Westmoreland being an agricultural county, we took first agriculture as the principal industry of the county, and so these lectures were on the principles of agriculture. Mr. Buckmaster's lectures were showing the advantages of scientific study in agricultural districts. After that we found by circularising our county councillors that there was a disposition in two or three places to commence classes, so then we had to come to the question—when I say classes I mean evening continuation classes in which a series of lectures or lessons would be given on the principles of agriculture—then we had to come to the question how were those lectures to be given, and we made a set of regulations. The principle regulation was this, that, inasmuch as we could not allow the work to be done in any indifferent or half-hearted way, we must have some standard, so we said that all the classes shall be held under the auspices of the Science and Art Department, South Kensington. We gain in that way a standard of efficiency which our masters shall attain: we gain also the opportunity of earning larger grants under the

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Code, as shown forth in their Directory, which would add to the sums of money we had. We laid it down as a condition that the people in whose districts the schools were established should find all the local expenses, and we would find the teachers, and send our own county lecturers provided we took the grants which they might earn. In cases where they had local talent they should use their own people to do the work, but they would have to be qualified so as to have passed and taken out a certificate under the Science and Art Department, our main object being that after getting them well started we should train teachers, so that in each district we should have qualified teachers with a certificate under the Science and Art Department, and take up the work as there seemed a necessity for in the district. Up to the present time, some twenty of the students in our schools, originated in this way, have taken certificates under the Department of Science and Art, and are qualified to teach agriculture, and some have taken certificates in other branches that would enable them to teach those: that in general outline was how the work was first started

9415. You took preliminary steps to excite interest throughout the county; what did that result in?—It resulted in our finding out in what parts of the county there was any desire to be taught. There are some places in country districts where the people are quite satisfied with their acquirements and are not much inclined to be taught, but by getting Mr. Buckmaster and others to lecture on the subject and afterwards sending lecturers on attractive subjects, we began to acquire a considerable amount of knowledge as to the places in which we should find people ready to take up the work. Work of this kind has to be advertised, and in the rural districts it is very slow business to get the people to understand that there is a fund from which they can be aided if they keep up to certain regulations, and the practical way of advertising this was to provide them with lecturers on some of the later subjects, on domestic economy, cookery and laundry work, and miscellaneous lectures. Where a short course of lectures would serve, we used those for two years as pioneering work so as to get the people to understand that there was a fund from which they could be helped, and that their own effort and organisation in getting up their little committees would secure them in future the help that they might require.

9416. They formed local committees?—They formed local committees

9417. How are they constituted generally?—In accordance with the directions of the Department of Science and Art; for that settles what I may call the social status of these committees, and we felt that whatever social status and general responsibility was satisfactory to the South Kensington Department would be satisfactory to us, and we might take their gauge as our gauge, and by that means we avoided all the difficulties there would be in country districts as to the people who should be trusted to administer to a very small extent the work through the county.

9418 What would be their rule as to the social status of a committee man?—They don't lay down any hard or fast line, but they like to get people of responsible position.

Mr. *Bateman.*—There must be at least five on the committee—one must be chairman and another secretary; one cannot hold the two offices.

Witness.—Any local committee must consist of a chairman and secretary, with at least three other members, one or more of whom must be thoroughly acquainted with the practice of agriculture.

9419. CHAIRMAN.—They must be farmers?—Yes.

9420. Captain SHAW.—That is your local regulation?—It says they would like to have a clergyman.

9421. CHAIRMAN.—And are those local committees entrusted with the administration of public money?—They receive grants from the Technical Instruction Committee, and they are responsible to us through our secretary, Mr. Bateman, to hand in vouchers and a complete statement of all their accounts, which we are compelled by the Government auditor to place before him.

9422. To what purpose are those grants applicable by the local committee?—When we make a grant in money it is applicable to any purpose, such as paying the teacher; in fact, that is almost the only purpose it is applicable for.

9423. What would a local committee pay a teacher?—That varies according to circumstances. Sometimes a teacher will take up work and say he will do it and depend on the results.

9424. He gets result fees?—He gets grants in aid from the Science and Art Department, paid on results.

9425. Could you give us any figures—a typical case of what the teacher might receive?

Mr. *Bateman.*—From £10 to £30, in proportion to the importance of the work taken.

Witness.—But in cases where the teacher was not forthcoming in the district, then one of our own lecturers used to go to the place and teach there, and in that case the grant that came from the Department of Science and Art came to the County Council to pay for the lecturer; but in every case they had to find the room, warm, clean and light it, and in cases where they refused to do that, we refused help definitely. We made it an absolute condition that where our money went it should be the means of drawing other money out of the locality. We should only aid and not maintain it.

9426. You mentioned just now about domestic economy; will you tell me whether domestic economy in the sense in which you have used the term, includes merely what is sometimes called housewifery, or does it include lectures in physics?—The actual subjects were nursing—a lady teacher who had passed examinations on such went round teaching nursing, and illustrating it.

9427. That is hospital nursing?—Yes; that was one subject; dressmaking was another in which large classes of young women were taught to cut out and make dresses; cookery was a third subject, and laundry work.

9428. Are not cookery and laundry work looked upon as separate subjects?—Yes; they were taken as separate subjects.

9429. Separate from domestic economy?—Oh, I don't know how that may be; I include them in the domestic classes.

9430. We heard in one of the evening classes in Liverpool a lecture being given to pupil teachers on such things as the way the lungs act, and the digestion?—Yes; we teach that under physiology, one of the subjects taken up under the Science and Art Department Code.

9431. Is that taught in the rural districts?—Yes, to some extent. And another special effort that we made to bring plain commonsense teaching down to the level of those who were not educated enough to understand physiology lectures, was that we employed a lady doctor, Dr. Janet Kay, who went round and had a classes for females only, to instruct them in matters of health and the management of children.

9432. What special work is there for school teachers?—We had a large class in Kendal; it is not very easy to get the school teachers as a rule to come with the scholars, or those who have just lately been scholars, to learn in the ordinary classes, although that can be done to a certain extent, but to avoid that difficulty we started a class here in Kendal where we had the laboratory you saw yesterday, and started a class for teachers only, and paid their fares; if they would come over from any part of the county we paid third class return fares and remitted their fees. Then the County Council paid the Kendal Education Committee the fees, instead of the students paying fees. That went on with great success for three sessions, and a great many of them passed; some of them are now teaching the principles of agriculture that they learned there. And then of course, when

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we had worked through that generation of teachers and pupil teachers there were no more ready for the moment or anxious to come—only a few straggling ones: then it was impracticable to hold a separate class for them, and we defrayed their expenses for them in going to the nearest centre working under the Science and Art Department. We found it better from experience not to pay the fares both ways, but one way and the fees, and let them pay the return journey. We thought it might put a temptation in the way of some young pupil teachers to enjoy an outing, and get his or her expenses paid, and we thought it better that they should have a little to pay for themselves.

9433. Do they go to other centres than Kendal?—Yes, Penrith; that is in another county, but rather than waste the money in bringing them to places not so near in our own county, we paid their fees, and sent them there from the Patterdale Valley, from which it is difficult for them to come here, we sent them from there to Penrith. Since bicycles came so much into use we have made arrangements to pay them third class fare for travelling on their bicycle for one journey, we allow them 1*d.* a mile towards the expenses of maintaining their bicycle.

9434. Have you evening continuation schools?—We have evening continuation schools in Kendal, Shap, and Crosscraik. We were disappointed in evening continuation schools the first year; we tried the work in connection with Science and Art Department, and it was not very much liked that we should do so. The Department of Science and Art have been of late rather tending in the direction of encouraging the higher attainments and leaving the County Councils to manage the more preliminary education, and we wanted in Westmoreland to regard our continuation school as a stepping stone between the elementary schools and the schools carried on under the Science and Art Department. My own mind has been very clearly made up on that subject for some time, if I might read a very short paragraph of what I said at the annual conference in London, under the Duke of Devonshire, a year or two ago, I think it will explain the matter. "In rural districts boys and girls now receiving a fair elementary education must be induced either to continue their school lessons, or to make use of what they know by prosecuting other studies, without any prolonged cessation from study. Two or three years' work on a farm without study was long enough to forget most of what had been learnt, and the young farm servant would grow up just able to read and write, and with an increasing disinclination to do one or the other. On leaving school there was a sense of relief from the tedium and discipline of school life, and a dull form of study would not answer. Young people must be shown the value of the rudimentary knowledge they had acquired by its application to some interesting subject outside the school curriculum. Evening continuation classes on elementary subjects had their place as a means to this end, but the earnestness with which such studies were to be continued depended much upon the students being encouraged to pursue a subject in which they would find the necessity of a more complete mastery of the rudiments of learning."

That is still my belief, and the main value of evening continuation schools in our midst will be to feed the schools of science and art.

9435. Do you think the Science and Art Department ought to assist the evening continuation schools?—Not the Science and Art Department.

9436. I mean their grants?—No, the Education Code assists the evening schools. I believe it is very much in accordance with what the Science and Art schools wish now. To take an object lesson in Kendal, the schools of science and art have been getting rather low in numbers, and the Kendal Committee have started continuation schools on the earlier part of such scientific study as will fit boys and girls, who are now perhaps too young to go into a science and art school, in a year or two to go into a science and art school.

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9437. Do you anticipate that if the thing was in full working order you would get the farm servants in time to come into the science and art classes?—Yes, I do, and I think with regard to the principles of agriculture it is an exceedingly important thing.

9438. Would there be any difficulty made by people in whose employment they were, in giving them the time to come in?—I don't think there would be any difficulty: in the rural districts where they have had large classes there has been every readiness shown by the employers.

9439. To let them come into Kendal?—Oh, no, they can attend classes outside, but when we come to deal with the agricultural point, I will show how largely the agriculturists have allowed their young people to go to the various classes that have been established.

9440. What classes have you for manual instruction in the county?—I would like to suggest if I might, that Mr. Bateman is better able to state that, if you would not mind leaving the manual question to him.

9441. Then we will pass on to the aid given to grammar schools?—That has not gone to any large extent yet. We have made it a rule, that wherever a committee has been formed, that the County Council has acknowledged, and which is also acknowledged by the Department of Science and Art, that no other committee shall be allowed in that district, so that any grammar school that wants help from us, has to come to us through the committee. It is always represented upon the committee that is acknowledged by both the County Council and the Department of Science and Art. Then any application received from them for funds towards the apparatus they may want, or for help in the teaching, comes before us, and has been acceded to in Kendal. The money that reaches the grammar school, £25 a year, towards their apparatus, is received from the Kendal school. In Appleby we have an application before us now: they are asking for £40 in order to get some of the apparatus they want.

9442. How many grammar schools have you in the county?—Five, I think. And Windermere gets help in the same way year by year.

9443. Where does the money come from that you grant to the grammar schools?—It all comes from the one source, the Customs and Excise Act, 1890.

9444. Will you now give us some information with regard to the instruction bearing specially upon agriculture and farm pursuits, including ploughing, hedging, fence-walling, veterinary surgery and experimental plots?—The veterinary surgery lectures have been an important part of our work of late, and we have had classes varying from twelve or fifteen to fifty or sixty. Eighteen up to seventy-eight, Mr. Bateman says. We arranged to give ten weekly first-aid lectures; we don't want to touch too much upon the veterinary surgeon's duty. We employ veterinary surgeons to go round and lecture, giving the ten weekly first-aid lectures, and dealing with the health of farm stock, the treatment of diseases and accidents, what is wholesome and unwholesome food, and simple treatment with regard to such ailments as animals may get. I suppose we have had sixteen or twenty centres by this time, in which we have given these series of ten weekly first-aid lectures. We employed two veterinary surgeons for the first part of the time, because there was a great appreciation of these lectures, and the farmers were clamorous for them all over the county. Now as the people have become satisfied, and most of them have heard these lectures, we are only employing one lecturer at a cost of £50 a year, and he has only to give one set of lectures before, and one set of lectures after, Christmas. The numbers that have attended these are sufficient indication that the young farm people can get away from

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their work perfectly well, and do in large numbers. There is one place about five or six miles from here that Mr. Bateman knows very well, where they came in great numbers.

9445. Professor FITZGERALD.—To your evening classes?—Evening classes.

9446. CHAIRMAN.—When there is a suitable subject being lectured on do women come as well as men?—Yes; I don't think they come very much to the agricultural lectures.

Mr. *Bateman*.—There are a few at every one of them.

9447. CHAIRMAN.—Do farmers' daughters come as well as the servants?—The farmers' sons do, but I don't think any girls from the farmers' families have been to the veterinary lectures.

9448. But to any lectures, such as on dairying?—Oh, yes, to the dairying work the farmers' daughters come in abundance. I might turn to the dairying now; we had some sets of dairying appliances, and we had two instructors employed who were qualified dairy-maids, and they went round the county, wherever we had an application for them, and stayed ten days to a fortnight at each place, and gave a series of butter-making lessons. I would say at once it has been most disappointing, although they took to the work with avidity, and understood it thoroughly and turned out splendid samples of butter made on hygienic principles; but as a whole they have fallen back to their old ways: in some districts some results remain, but as a whole I don't think the efforts we have made have improved butter-making in Westmorland.

9449. How do you account for that?—It is a purely personal opinion I venture to give. I account for it from the prejudices of those in control who prefer the older style. I apprehend that as we teach the better principles to the young people who never get into the practice of wrong principles, and as the old people leave off controlling or die away, we shall find a less prejudiced race to deal with: it is almost always so in matters of reform.

9450. Is there any additional expense as regards appliances involved in the new principles which the older people are unwilling to employ?—

Mr. *Bateman*.—Yes, that has a good deal to do with it. the modern churn and separator involves a considerable expense.

9451. CHAIRMAN.—I suppose the old farmer looks upon it very much as a fad?—Yes, that is it: what has done his father will do him, but I fully believe that by keeping hold of the children from the time they leave school and never letting them get into purely unscientific ruts, we will in time achieve what we have in view.

9452. I see in your notes there are a few minor points, ploughing, hedging and fence-walling?—Yes, In our district it is rather an important thing that there should be a spirit of emulation encouraged amongst the young men on the farm, that they should become adept in laying a fence, or building a fence of rough stone wall, and also in ploughing good straight furrows. We have not been allowed by the Government to give prizes with this money,—it would be against the law—but we are allowed to aid associations that teach their young people to plough and fence-wall and hedge properly: those associations give prizes from their general funds and we contribute to the general fund. We don't mention that.

9453. Have you ploughing matches?—Yes; that is how it is done and the emulation kept up. They have ploughing matches and fence-walling matches. A few loads of stones are put down and we work against one another. We only spend £30 a year on it, and I think it is well spent.

Mr. *Bateman*.—There are four associations, and each gets £7 10*s*.

9454. CHAIRMAN.—I see that there is one further subject on which you can speak, and that is the detached experimental plots which we saw yesterday?—Yes; the Commission have seen the book showing the way in which we propose to carry forward this matter. The terms upon which we do the work may be interesting to the Commission. They are briefly as follows:—We have a printed form of lease; we take a lease in which we are a party on the one side and the landlord and the tenant farmers are parties on the other, so that we cannot be turned out in case of the tenancy changing during our tenure. Then we arrange that we may give the farm up at any time. It is felt rather a long time to bind a public body like a County Council; so that if in the opinion of the County Council it was improper to have those things, we can give them up at any time. We pay for two-acre plots in five places; we pay £5 a year; it is a little more than the land costs the tenant farmer. We ask him to take the trouble, although we pay the whole of the expenses of farming this land. He does everything, without any judgment on his own part, in exact accordance with the instructions received from our plot sub-committee through our secretary: we defray all the expenses. We provide the seed and we provide the manure, and the farmer gets the crop as an honorarium for the trouble of his superintendence, and in that way it really becomes well worth while—the farmer makes several pounds a year—it becomes well worth while for him to do the work well and to take it up with interest, and we have taken great care in the choice of our plots, so that they may be on the farms of some men who are themselves intelligently interested in such things.

9455. In selecting your plots, I suppose you have regard to different characters of soil?—Yes; both soil and climate. We have had land down on the mosses and land on the uplands near Wellheads and near Sedgewick. We have had land at Clifton, the other side of Shap summit, where the climate is very different indeed; and we have land at Underley, where circumstances are different; and we have lately taken land in the neighbourhood of Temple Sowerby,—that makes our fifth plot. Those plots are all to be treated in rotation; but there is another matter with regard to experimental plots that is worthy of note. Westmorland is very much troubled with finger and toe disease amongst turnips, and there has been a considerable difference as to the best way of combating that disease. The County Council obtains plots of land badly smitten with this disease, and makes experiments on various sections of the plot in different ways, tabulating the results. For these plots we pay nothing; but the farmer is willing to let us have the control without payment. We put on a dressing of quicklime, or whatever it may be, so that he benefits in that way, and we pay him of course for the working of it. There is yet one other form in which our experimental plot work is going forward. Through the kindness of our neighbour, Lady Henry Bentinck, we have access to the old meadow near Underley Hall. We have divided that up into imaginary sections from peg to peg, and we treated the various sections of that in different ways, and then weigh the crop from the various portions, taking the weight of it wet and the weight after it has been made into hay, and treating the aftermath or fog in the same way.

9456. Mr. REDINGTON.—I think you said twenty teachers were taught agriculture in the classes that your County Council started?—Many more than twenty were taught; but twenty have succeeded in taking agriculture.

9457. Are they teaching agriculture in the elementary schools now?—Three to four. Mr. Chalmers is present.

9458. Do you know why the others are not teaching it?—It may have had some little to do with the question of apparatus; but it seems to me that it must be very short-sighted on the part of the school managers, where they have a teacher authorised in a subject, if they don't teach it. I think they ought to teach and get over the difficulty of the question of apparatus.

9459. What apparatus is required?—£2 or £3 worth. A few test tubes and matters of that sort.

9460. Do I understand that these teachers are teaching in the elementary day schools?—The elementary day schools—three or four of them, and there is a special grant from the Education Department. It is taken as a special subject, so that it pays the school over and over again to get it taught.

9461. As regards dairy instruction, is it given at present?—We have given up the local classes because we have entered into an arrangement with the neighbouring county of Cumberland, under which we pay part of the capital and part of the annual expense of the Newton Rigg Farm, which the Commission has visited, and we have a right to send some of our dairy students there, and, we believe, the course of seven or eight weeks' dairy instruction there will do more than the plan we originally adopted. We have given up local schools in favour of sending people to the permanent school.

9462. You have given up the peripatetic instruction?—It has given us up. We could not get the people to go. They got tired of it: they would not for our teachers, or form committees or classes.

9463. How do you expect them to go to this school if they care so little about this instruction?—We can accommodate a much smaller number, and there will be a certain number of intelligent ones, fathers and mothers, who will see that their daughters go to this school. It has a scholarship. We pay their expenses.

9464. I understand that in Cumberland they are continuing to send round dairy instructors to the various villages, so their experience must have been different to yours?—Yes.

9465. How long did your experiment last?—Nearly three years.

9466. By giving up the system of peripatetic instructors you deprived every one of the chance of improving their knowledge of dairying, except the few that might get scholarships at Newton Rigg school?—Yes, they deprived themselves of it; the districts would not any longer take it up; we have always gone on the plan of making the County Councillor in each district responsible. We send him six or eight circulars, and expect him to take the trouble of getting up committees, and in any district where there is a County Councillor who puts these things uniformly into the wastepaper basket, the people of the district don't get this advantage. There are some such men.

9467. Have you ever had peripatetic teachers of agricultural science?—We have had centres formed in connection with the Department of Science and Art to which our lecturers have gone and still go. Mr. Bateman is teaching a class now twice a week.

9468. Who attend those classes?—Chiefly the young men of the district, and some of the older ones, too.

9469. Those who have left school?—Yes, entirely, almost all.

9470. Would you think it better to reserve the teaching of agriculture until the pupils have left school?—Oh, no, I should teach it in the elementary schools. I should let them grow up with a sound basis, because there will be a great deal as they pass from school into life amongst all the slovenly farming work that is done, to make them think that what they have been taught is a mistake; they must be soundly grounded.

9471. Do you think the instruction ought to be given through the ordinary masters of the school?—It is with that view we have been so earnest in trying to train the teachers.

9472. If the teachers are not trained have you ever contemplated having peripatetic instructors?—We have never had any funds at our disposal which would enable us to do that; we cannot use money in aiding children who are aided by the Education Code.

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9473. Have you any opinion about the system of peripatetic teachers?—In the abstract I think it would be a very good thing; there would be the variety of voices and manner to the children which may make that lesson more attractive to them.

9474. You would get teachers who are experts in the subject?—Yes, men who have taken the Science and Art certificate are well qualified to teach the children all that they could be taught: I don't think there would be need of technical knowledge beyond that which the teachers have who have acquired their certificates under the Science and Art Department.

9475. But apparently only a small number of teachers have got that certificate?—Some twenty; it is a good many in a county of this size.

Mr. *Bateman*.—We have had about fifty masters from the schools.

9476.—Professor FITZGERALD.—You said that when you were trying to create local interest in it, the local people found the expense; from what funds did they find the expense—private subscriptions?—Yes, they had to raise those funds.

9477. They could not raise it off the rates?—No, the local committee must provide a room for the lecture or class instruction, with fire and light; and must, except where otherwise provided, meet any other incidental expenses which may be necessary to carry on the work in an efficient manner.

9478. They have to raise that by their own private subscriptions?—Yes, we help those who help themselves; the school managers often give it.

9479. Can they take it out of the ordinary school expenses?—Yes.

9480. They have not to make a private charity subscription of their own?—No, it has not frequently been necessary to make a little contribution

9481. You mention there has been pioneer work in cookery and laundry: is that continuing to be taught in the schools—cookery for instance?—There are schools in Kendal for cookery: that is going on still.

9482. In connection with the primary schools?—No, we lend them the apparatus.

9483. As a result of your work it has been started?—It is very likely it may indirectly have done so.

9484. Mr. STRUTHERS.—You have cookery taught in the day schools?—In some day schools.

9485. Professor FITZGERALD.—You think it desirable the continuation schools should bribe the scholars to go in by giving them elementary instruction in something they take an interest in?—Yes, most essentially, for the children are so glad to leave school they don't want to be bothered with school work afterwards.

9486. And you would encourage them to continue their elementary knowledge?—Yes, or they would find themselves left behind. I wanted a class in applied mechanics; I got a number of young mechanics to come to it; they had left school for three or four years on an average. They were delighted with the first class, and presently when they found the need of a little higher arithmetic, they were unable to understand. I started a class to teach them higher arithmetic, but before we got to the seventh lecture the thing had to be given up, they could not follow it, because there had been nothing to fill the gap between the time they were at school and the time when they were inclined to take that matter up as a science study.

9487. Do you encourage the children in the schools in the neighbourhood of the experimental plots to visit the plots and have the use of them explained?—No, nothing of that kind has been done.

9488. I understand you cannot give prizes, but you can give scholarships?—Yes, we do at any rate. We are very much in the auditor's hands, and he agrees to that.

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9489. Captain SHAW.—The payments which the teachers earn, which you say amount to £10 or £30 a year, are for lectures in the evening once or twice a week?—Yes.

9490. It does not represent the whole salary of the teacher?—Oh, no, it is simply the extra income that teachers may get from teaching twenty-eight lessons during the winter.

9491. Could you tell us of the people who gained certificates to teach agriculture, how many of them were elementary teachers, or about what percentage?—All that I speak of were teachers in elementary schools, all the twenty I speak of.

9492. Do you know how many elementary schools there are in Westmorland?—I don't know how many there are.

9493. Monsignor MOLLOY.—I gather from what you have said that the work of the County Council in the administration of this grant is to carry on the education of young people after they leave school, and chiefly with a view to fit them better for their business in life?—That is exactly so.

9494. And in carrying out that idea you found it necessary not only to provide the education, but also to stimulate the demand for it?—That is so.

9495. And you tried to attain this end by sending round lecturers to awaken the people to the necessity of this education?—And to the fact that help would be provided.

9496. Can you say on the whole whether your work in that direction has been up to the present successful?—Yes; on the whole it has been successful.

9497. And you think some good fruit has been gained by the teaching you have introduced?—I think in two ways there has been good fruit, first, in stimulating a desire for knowledge, and then there has been good fruit in the acquisition of knowledge also. The Committee is now wide awake to the fact that the County Councillors in the various parts are hearing from their constituents on the subject. There is no longer the apathy there was at first when we began with our smaller endeavours.

9498. And do you think a solid foundation has been made for more effective work in the future?—I think so. I don't regard the subjects we have spoken so much of, such as dairy, ambulance, and cookery work, as the legitimate ultimate end. I don't think the County Council ought to spend a great deal of their money on that ultimately. But it was perfectly right and proper that these subjects should be taught at the expense of the County Council in order to stimulate and break down the want of interest in education; but we should hardly like to go on permanently with the funds we have at our disposal in teaching subjects that are only subjects of five or six weeks lectures. We want more permanent work.

9499. But you take them up because, being very practical in their character, they would appeal more to the people?—Yes, and the fact of these things being taught has done good itself. We have known one or two cases in Westmorland where life has been saved by the knowledge men had from ambulance teaching. We have had one or two cases where it was certain life was saved from such, and I have no doubt the cookery was better than it used to be.

9500. I think you said that you sent round teachers to lecture in localities on veterinary science?—In veterinary science upon first aid to cattle in illness or accident.

9501. I was anxious to know a little more in detail about that—the nature of these lectures?—It is in our programme.

9502. The object was to enable the people to give such aid to cattle as would carry them over the crisis until professional aid could be obtained?—That is so.

9503. And perhaps you might even go further, and enable them in ordinary light cases to treat the cattle without the necessity of having professional assistance—would that be so?—No; I don't think we have ever advocated so much. We wish the people to know what the signs would be if a cow was poisoned or was getting some disease that would render it necessary to isolate it. We should put the parallel of it in home matters, as "What to do until the doctor comes."

9504. Are there not a number of common diseases of cattle which an ordinary herd is supposed to be able to treat?—I am not farmer enough to answer the question.

Mr. *Bateman.*—They do treat them.

9505. Professor FITZGERALD.—Did they treat them well in the past?—

Mr. *Bateman.*—Of that I am not certain.

9506. Monsignor MOLLOY.—At all events, these lectures would be of advantage to a herd, and to those having the treatment of cattle, in dealing with the ordinary maladies of cattle?—There is no doubt about that.

9507. I should like to be quite clear about the advantage which the farmer gets in connection with these experimental plots. In the first place he gets rent from the County Council higher than he himself is paying?—A trifle more.

9508. He gets £5 where, perhaps, he pays £3?—Yes.

9509. In the next place the County Council pays for the manure and seed?—Yes.

9510. Next the County Council pays for the labour which is carried out on the farm?—Yes.

9511. And lastly the farmer gets the crop?—Yes.

9512. And he gets all the benefit at first hand which results from the experiment?—Yes, in exchange for which he gives his personal supervision and his care and watchfulness during the whole of a long season.

9513. These terms are extremely favourable to the farmer?—We think they are fair to the farmer and fair to the county.

9514. And I suppose under this arrangement you have no difficulty in getting experimental plots from the farmers?—We have had a difficulty in one district, but it has been overcome by one of our county councillors stepping forward and offering a plot of land.

Mr. *Bateman.*—Seven farmers in that district have offered plots this year.

9515. Monsignor MOLLOY.—Do you find the farmer himself takes a practical interest in the experiments carried out on his own land?—He watches it; I don't know that I can say more than that.

9516. He likes to see a good crop coming round?—No doubt.

9517. CHAIRMAN.—Does he copy it on his own land?—The work is too young to enable us to say.

Mr. *Bateman.*—I have a letter this morning from Mr. Patterson saying that he is dressing his finger and toe land with six tons of lime, and that is exactly what we did, and found effective.

Witness.—It has been urged in objection, that other experiments have been made on a fairly large scale by well-qualified agricultural professors, but nothing will bring it home to a farmer like seeing it in his own district.

9518. Monsignor MOLLOY.—I quite agree with you. The experiments are carried out chiefly with a view to promote a more economical system of farming, especially as regards manures, and also to promote more efficient cultivation of the land?—I think the latter is the safer way of putting it. I should hardly like to say that we definitely advocate less manure, we want to show the most efficient method of cultivating the land rather than the cheapest; the most efficient must be the most economical.

9519. We heard that in Durham and Northumberland they don't succeed in producing better crops than the farmers produce, but they produce them with less expense in the use of artificial manures?—Yes.

9520. Rev. Dr. WILSON.—What is the average income you receive under the Customs and Excise Act for the county?—£1,700.

9521. Do you spend all that in connection with the instruction under the Science and Art Department?—No, all in what comes under technical instruction, but a good deal of work is done without any connection with the Science and Art Department; for instance, the experimental plot-work has nothing to do with the Department. The £100 a year which we give to Newton Rigg farm has nothing to do with the Science and Art Department, but it is all in the direction of technical instruction. And much more, up to £500 or £600 a year comes into the county from our doing it in connection with our friends in South Kensington, because we do the whole thing in such a direction that we try to get the money from the Imperial Exchequer to add to the small sum we have to dispose of.

9522. Then you not only get £1,700, but £600 from South Kensington also?—It comes into the county, but it does not come to the county council: some little of it does, because, where we find the lecturer we take the grants.

9523. I understand you have experts about horses and cattle; I suppose you have the same with regard to sheep?—The same lecturer takes the question of sheep as well.

9524. As to the best breeds, and he deals with their diseases?—Yes.

5525. Do you think the farmers are coming to realise more the advantages of those lectures?—I think so: there is a strong prejudice against them I have heard within the last few weeks, but the farmers have a loose way of talking: they say "You are just wasting your money with this agricultural instruction," but then we find a great number of them coming and sending their sons, so we discount these strong remarks. But that there has been a strong set against being taught the principles of agriculture among the old fashioned farmers is beyond question; but there are progressive young farmers who are looking at it from a different point of view.

9526. You are persevering because you are satisfied that you will succeed in the end?—Yes.

9527. The peripatetic system of instruction in dairying did not encourage you, but you have what we may call a centre for the two counties where you give them six weeks?—Yes.

9528. Is that more popular?—We have only had four or five students there, altogether six; and we have not had time to judge yet: as you saw, that place is all quite new.

9529. Mr. STRUTHERS.—You spoke of the desire of day scholars to be relieved of the tedium of work in day schools; they are glad to leave school?—Yes.

9530. How do you account for that desire to leave school?—I did not intend to convey that they would wish to leave school, but if you tried to get young people after they had left school, to go back to the routine of the day school work, it would be tedious to them.

9531. You don't think they find the curriculum of the day school tedious, and that they desire to be relieved from it?—Oh, no.

9532. You refer to inducing them to go on with their studies in the evening school?—If children of thirteen or fourteen have worked pretty hard all day, they want something more attractive than the ordinary routine of the day school to keep up their interest.

9533. A boy leaves school this year, does he go to the evening continuation school that same year?—We have not much experience yet: we have only this winter started the evening continuation schools.

9534. Your object in the continuation schools is to strengthen the knowledge of elementary subjects, and also to lead up to science and art instruction?—Yes.

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9535. What subjects are taught in the evening continuation schools?—In Kendal we are teaching mensuration; we have a great deal of diagram work, and so forth; we are teaching physiology popularly. A doctor who is very earnest in such matters is teaching a class of fifty or sixty—seventy-five on the register—once every week, and he does it in a very popular way.

9536. A mixed class?—It is a mixed class. There are some men and women, and even lads and girls in the class. Then we have two large shorthand classes, and for those who are going to follow clerical life, a life connected with clerkship in any way, shorthand is an almost indispensible thing, and there is a great eagerness in our town where we were obliged to make two classes, because there were more than could get into one. And the fourth is the science of common things; it is a series of popular lectures that will hold a lot of inattentive lads and lasses, to get them to understand that there is something well worth looking into, that might not occur to them without such instruction.

9537. Do you continue to teach arithmetic in the evening schools?—No.

9538. Nor English composition?—I have told you all that we are doing in Kendal.

9539. You spoke of the evening continuation schools as meant to be the feeders to the science and art classes?—Yes.

9540. Such subjects as shorthand would scarcely come in under that head?—No, it would hardly come in under the head of the science and art classes alone, but in Kendal we have a kind of duplex committee, we have the Kendal education committee, one portion of which is affiliated to the Science and Art Department, but the shorthand work would come under the general work of the Kendal education committee.

9541. So the kind of work which these evening schools would lead up to, would not be exclusively of the science and art type. It might be of a commercial type, including such subjects as book-keeping, shorthand or French?—Yes.

9542. Then you say you would not care to spend much money permanently on teaching such subjects as cookery, laundry work, and this course of veterinary work?—If I had a great deal of money I should like to have courses given to every teacher, all round; but having only a small sum I don't think it would be the wisest way to spend it.

9543. What subjects would you aim at teaching ultimately?—It is more important to gain right instruction in agriculture than in any other subject. In Kendal of course there are various manufactures, but the preponderating need of the county is good agricultural instruction,—by far the largest commercial turn-over of the county is in connection with agricultural pursuits, infinitely beyond all proportion with anything else, and that is why I think the principles of agriculture must be one of the first matters that should have our attention.

9544. Would you think of having a school of agriculture or agricultural classes in separate centres, an agricultural school corresponding to your science and art school here?—There is the farm and there is a good deal besides dairy work at that farm: it is a demonstration farm as well as a dairy farm.

9545. You mean the farm at Newton Rigg?—Yes. And I should look to the Department course of agricultural instruction wherever people were ready for it and would take it, but I am very anxious to see the principles of agriculture taught to all the little boys and girls in the elementary schools in the rural districts of the county. I expect most good in fifteen years time from work done by the elementary teachers in leading these children to understand something.

9546. That is rather going backwards than forwards; you spoke of the expenditure on cookery and laundry as not being permanent, and you look forward to

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something of more value, but when you speak of teaching in the elementary classes that is going back? —What I mean is this, we must train the teachers of the present day, elementary school teachers and the young pupil teachers, and the ex-pupil teachers, get them all brought forward, so that they shall have an intelligent knowledge, and that agricultural instruction shall become in rural districts a necessary part of education

9547. Captain SHAW.—You don't contemplate completing their agricultural instruction in the elementary schools?—Far from it, but to prevent the poisoning entering them.

9548. Mr. STRUTHERS.—You would advocate the teaching of agriculture in day schools by properly qualified teachers?—As an individual I should.

9549. You think there would be sufficient time for it without harm to the other subjects?—I think it is more important than some of the other subjects.

9550. And you think the pupils are of an age to profit by that instruction before they leave school?—Yes.

9551. CHAIRMAN.—Following up what Mr. Struthers has asked you, are most of your schools in the rural districts in Westmorland mixed schools?—Yes.

9552. Are they as a rule taught by a male and female teacher, boys and girls separately, or does one teacher teach the mixed classes?—I am not prepared to answer with regard to the rural schools: in Kendal it is managed in both ways.

9553. I am thinking more of the small schools?—I have not sufficient knowledge of the small schools. I should like to say that I should not wish to be misunderstood about the position of agricultural instruction, because as a matter of fact a very considerable proportion of the money that we have at our disposal goes towards scientific work that does not bear solely upon agricultural pursuits. Drawing has nothing to do with Agriculture: the money that we spend on manual instruction has but little to do with it although it may help a man to mend a gate or a door, but a great deal of the money is spent in a way not connected with agriculture. In answering Mr Struthers, he gave me the opportunity of putting very great weight upon the agricultural side of things, but it must not be understood that the County Council would feel that anything like the whole of the money should be given to agriculture. Towns have their rights and their special industries as well as the country. £900 out of £2,000 was allotted for agriculture, and £1,100 to pay the organising expenses: agriculture got a little more than half the net amount at our disposal.

9554. Mr. STRUTHERS.—Then the population of the county is much more than half agricultural?—Much more. I would like to read this letter on the question of how long training on one day of the week was necessary, and with what results. A schoolmaster in Westmorland writes:—"I have no hesitation in giving an affirmative answer to your inquiry as to the benefit I received from my attendance on the teachers science classes at Kendal. Prior to attending them I had absolutely no knowledge of either the principles of agriculture or inorganic chemistry: the practical and interesting manner in which these subjects were taught enabled me to take up and teach both. In our day class we have taken agriculture three years in succession and chemistry two years, receiving the maximum grants for both subjects from the Education Department."

9555. Professor FITZGERALD.—That teacher when he was being trained in Kendal attended for three years? —He attended for three years only on Saturdays.

Mr. James Bateman

Mr. JAMES BATEMAN, Organising Secretary to the Westmorland County Council, examined.

9556. CHAIRMAN.—You are the Technical Instructor and Organising Secretary of the Westmorland County Council?—Yes.

9557. You are prepared to give us some evidence, I believe, as regards the organisation of classes?—I think Mr. Gilkes has gone into that pretty fully; it is mainly done by pioneer lecturing in the different districts.

9558. Then we need not repeat anything you think Mr. Gilkes has gone fully into; perhaps you will supplement it and then come to those subjects on which you can give us special information yourself?—I don't think Mr. Gilkes mentioned the fact that I am sent around to each of the districts to see the schoolmasters and others interested, to do pioneer work, and try and get these classes organised by explaining how they can get aid from the County Council.

9559. Perhaps you could answer the question with regard to the elementary schools; can you tell me whether there are many mixed schools—boys and girls I mean—mixed schools taught by a single teacher?—There are some, but I cannot give you the number.

9560. In Ireland we have an appreciable number in that position, and I want the information for the benefit of schools of that sort?—I think Mr. Chalmers will be better able to answer that.

9561. Assuming that there are such schools where there is only a male teacher or a female teacher, should you propose that the principles of agriculture should be taught by the teacher, whether male or female, according as to which the school is under?—I don't think it would do for the female teacher to teach agriculture; but, if a male teacher had gone through a special laboratory course with a view of teaching agriculture experimentally I should certainly advise that.

9562. Mr. Gilkes advocated the teaching of agriculture both to boys and girls. What I want to get from you is whether if there was a school in which there was only a female teacher, you think the boys and girls of that school should be taught by the female teacher?—I should not have thought that they should be taught agriculture to any extent, for it is no use teaching agriculture from books.

9563. Do you wish to say anything with regard to school teachers classes?—I have had a great deal of experience of those classes; in fact, I have actually taught them myself. For the first year we had quite a large number of teachers, I think thirty-eight; the second year not quite so many; in the third year there was a further falling of; some had left the district and others had qualified. We found that those who were in earnest took up in addition to the agricultural teaching the laboratory work. They found they could not make anything of it unless they had a knowledge of chemistry, and so they took two sciences concurrently.

9564. I suppose at first when all the teachers were more or less uninstructed you would naturally have had larger classes than in succeeding years when a proportion of them were getting their certificates?—They had got their certificates and qualified themselves to teach.

9565. And therefore there would be a fewer number left in the county who were unqualified, and that would account for the falling off to some extent?—That did.

9566. Perhaps you would give us some information with regard to the experimental plots?—On those plots I have had to carry on the work myself entirely. I get aid from farmers and labourers in the district in doing the actual work. One great point about the plots is that the committee insist that the work should be done accurately. We are not content with weighing the outside and the middle row of the root crop and then multiplying by the number of rows, but the whole crop is weighed and the whole of the tops as well. One object really in the fallow crops was to test the relative values of the various manures which were usually applied as dressing in Westmorland, and we took equal values. I don't know that that was a very scientific way of getting about it, for we didn't get the proper ingredients according to the ash of the plant. But the farmers can more easily reckon their actual values than by having to work a series of proportion sums.

9567. On the experimental plots that we visited first, on the mossland was farmyard manure used, or is it only artificial manure?—We don't use farmyard manure there because the soil is already charged with vegetable matter, and it is not thought necessary. A peat soil does not respond to farmyard manure so well as some other soils.

9568. Therefore you don't try experiments as to the result of putting artificial manure with farmyard manure. We had evidence about that at Carlisle, and one of the witnesses told us that some artificial manure acted as an antiseptic and destroyed the farmyard manure—you have not tried that experiment?—Yes; on suitable soils we have tried a half-dressing of farmyard manure and a half-dressing of artificial.

9569. Did you ever find that the artificial manure counteracted the effect of the farmyard manure?—We have not found that on the plots.

9570. I think as far as the details of the management and maintenance go we have already had the facts from Mr. Gilkes; perhaps you would give us any general observations that occur to you upon other points connected with your office as organising secretary?—I might say a few words about manual instruction. A question was asked as to the number of classes for manual instruction.

9571. There are several points in connection with manual instruction on which we should like information. For instance, has it caught on in the rural schools in Cumberland. We heard there was only one rural school in which it was practised outside the town?—We have fifteen schools where manual instruction is taught, and we give them grants towards the expenses. It is mainly the teachers' salaries which absorb the grants.

9572. Captain SHAW.—Those are evening classes?—Those are evening classes, and mostly in the rural districts—twelve out of the fifteen.

9573. CHAIRMAN.—What we particularly want to know is whether any of those teachers carry out in their own schools what they learned in the evening schools?—Yes; we have teachers teaching manual instruction who have got the information or teaching from our own schools.

9574. Are there many in Westmorland?—Not many; I think three.

9575. Do you think it is likely to spread?—I think it is. As soon as ever the evening continuation schools are established we shall have a whole group of teachers.

9576. Is there any difficulty in providing funds in rural districts? Will the managers provide the funds for the carrying out of the system?—In many cases. I know that they give at least the schoolroom; they forego the rent. I don't know where it comes from, but we don't pay it.

9577. Will they give any assistance towards the buying of benches and tools?—I think they will in some cases.

9578. We rather gathered from the evidence at Carlisle that that was the real obstacle—that the managers won't put their hands into their pockets for that purpose?—To a great extent that will be the obstacle here; but in the evening continuation school they will get a grant from the Education Department.

9579. Can the County Councils spend their money in aiding the rural schools?—In the evening schools. They cannot give it to primary schools.

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9580. What we are inquiring into is whether we could work manual classes into the school hours. In Ireland the State would probably have to provide the funds, if it is done here the funds are provided from the school rate, I suppose, in Board schools. But how would it be in voluntary schools?—I suppose it would come from the general fund.

9581. And you think there would be a difficulty in finding funds for equipping these manual classes?—I think there will.

9582. Mr. STRUTHERS.—I should like to be quite clear about the distinction between the day school and the evening continuation school—you spoke of fifteen centres in which manual instruction was given?—Yes, but those are not evening continuation schools.

9583. Centres for instructing teachers?—No; classes in rural districts where manual instruction is taught in connection with the County Council work.

9584. Are they taught during the day?—They are not, except in one; they are mostly taught in the evening.

9585. They are not drawing grants from the Department; they are solely in connection with the County Council?—Yes; they were organised solely by the County Council.

9586. Then who are attending those centres—they are not teachers?—Some of them are teachers.

9587. But not all?—not all teachers; they are not teachers' classes.

9588. Have you a teachers' class in addition?—Yes, a special teachers' class for training teachers to teach.

9589. Do you know how many teachers you have trained?—About fifteen.

9590. And you have already three of those taking the work in their own schools during the day?—I think there would be more taking the work in their own schools during the day. I was speaking of those who are taking up the work in the evening schools.

9591. I thought you said in answer to the chairman that there were less than half a dozen elementary day schools, and then you suggested three?—I am afraid there is some confusion; the teachers who are teaching who have got their equipment from our own schools, are teaching in evening schools which are under the control of the County Council.

9592. CHAIRMAN.—Teaching adults, not children?—Those who have left school.

9593. Mr. STRUTHERS.—Come to the ordinary day school. Is manual instruction given in any of those?—Yes, certainly. I visited six of them in Westmorland myself, and I have no doubt there are others. There are two in Kendal—excellent schools.

9594. Taught by the teacher of the day school?—Not necessarily; in one case by the teacher; in other cases by men taken from outside.

9595. Have those teachers or instructors been trained at your class?—Some of them have. The others have got certificates or qualifications elsewhere—from the Sheffield school which visits Ambleside every year for two months.

9596. Have you any form of hand and eye training as apart from wood-work?—There is card-board work, and Sloyd.

9597. The Sloyd means wood-work?—Yes.

9598. Have you any other form of manual instruction than wood-work in the day schools?—There is card-board work.

9599. Captain SHAW.—You have not much experience of the day schools yourself?—No; it is just incidentally. Mr. Chalmers probably knows a great deal more about it.

9600. Mr. STRUTHERS.—You know specially about evening schools: of these there are two classes—those getting grants from the Education Department, and certain special classes conducted by yourself and maintained by the County Council?—The aim of the

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County Council is to have those classes affiliated with the Science and Art Department except for manual instruction which does not come in their curriculum.

9601. Professor FITZGERALD.—And shorthand?—Those are in the evening continuation schools.

9602. Mr. STRUTHERS.—How many evening continuation schools have you under the County Council and conducted under the regulations of the Science and Art Department?—We have none conducted under the regulations of the Science and Art Department; they are under the Education Department, at Shap, Cross Craik, and Kendal.

9603. Have you any classes under the Science and Art Department?—We have the ordinary science and art classes.

9604. How many of those have you?—If it is a question of classes it is something like fifty.

9605. An important part of your work is training teachers agriculture?—It was.

9606. But it is not now, because so many have been trained?—It is run out.

9607. That presupposes you would advocate the teaching of agriculture in the day schools?—I think to the upper standards it would be an excellent thing—after the fifth standard, or including the fifth,

9608. That means children who are over twelve?—About that.

9609. Can you say in what form you would give instruction in agriculture in the day schools to children over twelve?—I should appeal to them and stimulate their thoughts by making it experimental.

9610. You know Mr. Chalmers' method of teaching agriculture?—I do, and if you don't mind, I think it would be better to let Mr. Chalmers state it himself.

9611. Rev. Dr. WILSON.—What are the special subjects usually taught in these evening schools?—Under the Science and Art Department, chemistry, organic and inorganic, physics, physiology, botany. Biological botanical classes precede the botany classes, where the students are allowed to make their own sections and mount them. They have microscopes, and are equipped with all the necessary apparatus Mathematics is a subject which is very largely taken up.

9612. Monsignor MOLLOY.—Are there any rural schools in this county, with garden plots attached to them for the teaching of agriculture?—There are not.

9613. Would it be in the power of the County Council to expend a portion of their funds in helping to establish such garden plots?—Certainly; it is done by other counties, not for the elementary schools.

9614. I mean for the elementary schools?—They cannot do that, it is illegal.

9615. In what way can they establish such plots for educational purposes?—They have plots and they engage experts to teach, to give a series of lectures on the plots themselves, taking the young people with them. That is what is done, especially in the south.

9616. Who would these young people be—the children of farmers who have already left school?—I think they are grown people, mostly gardeners.

9617. Young men?—Yes, and old men as well, all kinds of people, not necessarily farmers, but those who have small gardens.

9618. You have no experience of such teaching?—Not here.

9619. Captain SHAW.—With regard to the teachers' classes which you have held, what course of training do you give teachers in them?—Agriculture and chemistry.

9620. How much time do you devote?—Some of them come at ten o'clock in the morning and remain until six in the evening. We allow them to work as long as they like.

9621. That refers to classes at the Central School. But have you had teachers' classes at any place else?—Not teachers' classes entirely. We hvae had classes to which teachers have come. We have had as many as six teachers at a morning class, but we had no laboratory work.

9622. How long does the course for teachers go on?—It is concurrent with the Science and Art season; it begins in October, and ends with the examination.

9623. Do you consider one such session is sufficient to prepare the teachers?—Certainly not.

9624. If a teacher has to teach agriculture scientifically, how long do you think he requires training?—At least three years. He should study alongside agriculture the chemistry of the farm in the laboratory.

9625. Mr. STRUTHERS.—By three years you mean three winter sessions?—Yes, from October to May.

9626. Captain SHAW.—It would be very difficult to qualify all the teachers of the country if they had to give three years—is there any substitute for that? As things are arranged at present I don't see there is any substitute.

9627. Do you think it would be safe to let the teachers take up this teaching of agriculture unless they had three years' training?—No; I think it would be very bookey if they did.

9628. Would it be possible for them to learn some elementary botany and chemistry tending to agriculture?—It depends upon the capacity of the teacher. I think three sessions would be much better than two; he would find himself more thoroughly equipped for performing experiments and awakening interest in the children's minds. It becomes a very dangerous thing if a teacher has only had one or two sessions in laboratory work for him to perform experiments.

9629. In other places in teaching elementary science a system has been adopted of giving the teachers a lesson beforehand, and letting them repeat it, and so gradually training them up without going deeply into the teaching of any particular science. Do you think such a scheme should be adopted?—I should not lend myself to that. You mean for the teacher to be a lesson ahead of the children?

9630. For the beginning, but he gets far ahead as he gets on?—I never heard of such a system, and should not advocate it.

9631. In teaching the class, do you find the teachers who come to you to be trained are sufficiently prepared already to take up the subject of agriculture, or have you to go through a lot of preliminary training?—They have the power of absorption, and there is no difficulty when they give their minds to it.

9632. Do you find they have any preliminary knowledge of chemistry?—Some of them have.

9633. Those ones, of course, can get through the course much more quickly?—Much more quickly, as a rule. In the training colleges—I don't know what they are doing now—but formerly the teaching was very superficial, very bookey; the laboratory work was not thoroughly done. I found that in the case of teachers who had come to the place with passes in chemistry, knew very little about the important part of the practical work.

9634. Do you think the passing of the examination by the teachers under the Science and Art Department is a satisfactory test of their capabilities?—No.

9635. What would you prefer to that?—I should like to see what the teacher has done, and have some idea of the work he has gone through.

9636. If you have trained a teacher yourself I suppose you consider it would be safe to give him a certificate to teach after watching his work?—If you specially name agriculture, and I knew he had a three years' course in the laboratory——

9637. If you personally had been superintending the instruction of the course, you would feel assured that you could confidently recommend a man to teach it after he had gone through the course, simply after he had been trained under you?—It would depend on circumstances. I should not like to answer that question without due consideration. Some teachers get passes and they are not fit to teach; others who get passes are.

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Mr. STRUTHERS.—But it is not a question of passing.

Captain SHAW.—It is a question of your observing their method of learning the thing when receiving the instruction.

9638. Professor FITZGERALD.—If you yourself had had teachers under your supervision for two years, don't you think that at the end of two years you yourself would be able to recommend those of your class who would be good teachers?—I think I could pick out those who would be sufficiently equipped to teach.

9639. CHAIRMAN.—Could you tell whether they had been good teachers until they had been actually engaged in teaching?—You would want to see their methods.

9640. Professor FITZGERALD.—But if you had practising schools, in which you saw them teach, don't you think you would be then able to tell?—Certainly.

9641. Captain SHAW.—How far can agricultural instruction be carried out in schools, recognising the fact that the children leave at twelve or thirteen years of age?—Approximately, up to the first stage of the Science and Art Department.

9642. That deals simply with plant food and the growth of plants and the use of manures?—And the composition of the soil.

9643. It does not touch live stock?—It does not touch live stock.

9644. Do you know the syllabus of the elementary day school Code?—I have gone through it; I have never actually taught that.

9645. Does that comprise all that you think could be successfully taught?—I think so, I think it is a very fair syllabus.

9646. Professor FITZGERALD.—You said that agriculture should be taught practically in the schools?—I think so.

9647. Do you mean by that, that the children in the schools should plough?—Not plough; the children cannot plough.

9648. Then by teaching agriculture practically in the schools you mean that they should see experiments made upon the growth of plants?—All the simple experiments should be made by the teacher, and he should take them out on the farms, and I believe every teacher in the rural districts has that opportunity.

9649. That is, that he should utilise the farms in his neighbourhood for the purpose of making object lessons?—He cannot teach agriculture without doing it.

9650. He cannot teach it properly without doing it, but he can teach what is sometimes called agriculture out of a book?—It may be called agriculture, but it is a waste of time.

9651. You mean he should illustrate the principle of agriculture by practical experiments and object lessons on neighbouring farms?—Exactly.

9652. You think it is very desirable that the children themselves should make experiments if possible?—Some of the simpler ones.

9653. You mentioned chemistry as an introductory subject to agriculture; do you think that biology in any form, such as elementary botany, would be useful?—Yes; that is exceedingly useful, and geology too.

9654. You think children should be encouraged to make collections of injurious insects and plants—botanical collections?—That would be a great help.

9655. Professor FITZGERALD.—Do you think teaching them to take an interest in those things in their neighbourhood would be of educational value to them?—I do think that.

9656. CHAIRMAN.—There are one or two questions which arise out of what I see in this book that I don't quite understand, and one is—what do you mean by the term "fog"?—The aftermath.

9657. What we mean in the North of Ireland by fog is the moss that grows in coarse land?—Yes; it is a common term here, applied to aftermath

9658. Professor FITZGERALD.—Have you considered this scheme put forward for teaching elementary agriculture in the schools in France?—I have not seen sufficient of it to speak about it; I have seen some notices of it in the paper.

9659. CHAIRMAN.—Another question is in reference to lime-dressing. I think that so many tons of lime had been applied to an acre to cure the finger-and-toe disease—could you tell me what would be the cost per ton of that lime?—It depends entirely on the distance to the kiln; in some cases the cost is exceedingly small; in other cases 25*s.* a ton.

9660. Then the cartage makes a difference?—Yes, it does.

9660A. Can you give me any idea of what cost a ton of lime would be at the lime kiln?—They sell it by the bushel—probably 10*s* or 12*s.* a ton.

9661. If you had a field near a lime kiln, or had a lime kiln of your own, you could put six tons on for 60*s.*, but if you were a considerable distance from a lime kiln it would cost you three times that to manure an acre of land?—Yes, it would.

9662. Now I see in this table, where you give the result of manurial experiments on lea oats, that the produce of the unmanured is nearly in every instance greater than that of the manured land—do you think that that is a reason for not manuring?—I think if the farm is well farmed they should seldom manure lea oats.

9663. I am not surprised at finding the corn is better, but I am rather surprised at finding that the straw is better in half the number of instances, and that the difference of the manured ground is so very little in excess of what the produce on the unmanured land is. I think the highest figure here for the nitrate of soda is 248·13, whereas in the unmanured it is 235·10?—Yes, but the grain is considerably more. That was the only plot where the oats were not laid. With regard to No. 5 and No. 6, two manured plots, they stood well, the produce in those cases being 123·8 and 168·3 for the grain, and for the straw 220 and 221, respectively, both of them something lower than the grain that was not manured.

9664. Monsignor MOLLOY.—Do you think that practical agricultural teaching can be given in connection with experimental plots to boys who have already left school?—I think so.

9665. It would be a sort of continuation school for agricultural teaching?—Yes, certainly.

9666. Is that a purpose to which the County Council could apply their funds?—I think they could in connection with the agricultural classes.

9667. Should you think it desirable?—I should think it very desirable indeed.

Mr. JOHN CHALMERS, Head Master of Burton School, Westmorland, examined.

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9668. CHAIRMAN.—You are the Head Master of the Burton-in-Kendal National School—will you tell us what in your experience are the benefits derived by teachers of elementary schools from attending classes for laboratory instruction?—If we go no further than what has been talked about already with regard to teaching agriculture, I myself, and other teachers in the neighbourhood have found it of very great value. And we may go outside the teaching of agriculture and go to object lessons of various kinds. There is no doubt that being conversant with chemistry helps the teacher to a very great degree in selecting his subjects for object lessons, and besides that it gives him a power in manipulating things in giving his lessons before the children. If he has had a laboratory practice he does not go there all

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fearing and quaking that his experiments won't come off. He feels sure that he will get them off, and the children take more interest in them. I don't think, with regard to what has been said about teachers' classes, there is much more left for me to say upon that point except as a practical teacher.

9669. Perhaps you could answer the question with regard to mixed classes. In Ireland I see by the report that more than half the schools have only mixed classes—a mixed attendance of boys and girls. There are 4,371 schools for the mixed attendance of boys and girls out of a total of 8,530; of those 919 have masters only, 1,579 having mistresses only, and 982 having a master and a female assistant, and 891 having a master and a workmistress. That will show you the very large number that are mixed, and the very large number that have only mistresses. In the case of a school where there was only a mistress, would you agree with Mr. Bateman that agriculture should not be taught?—I don't think it could be taught in all its phases successfully. There are many things connected with agriculture that they might teach, such as dairying, but not field agriculture.

9670. Putting aside the schools that have only mistresses, do you think that in the mixed schools that are taught by masters only, the masters could teach the girls as much as it was desirable that they should know of agriculture?—Yes, that is so. In my case my own is a mixed school, and I do not divide them for agriculture. In fact I find that the girls themselves take an equal interest with the boys.

9671. Do you find that attending laboratory instruction is an assistance in the choice of objects suitable to the locality in which the school is situated?—Decidedly, a great advantage.

9672. Could you give us any general observations upon the teaching of the principles of agriculture in elementary schools?—The Code has been mentioned as a standard. But the Instructions to the inspectors, and also various other parts of the Code, give us a liberty to remove from that. We are not compelled, especially in the lower parts, to take our object lessons from exactly what is quoted there. Our object lessons of course must be—if we take agriculture in the upper part of the school—such object lessons in the lower as shall lead to the agricultural lessons in the upper part. For instance, we may take parts of a plant or portions of the soil. We may take many other things—animals on a farm; they can be taken up in the lower classes in connection with our object lessons. Of course we cannot get the objects for all these things. But there are diagrams published now by various firms which answer the purpose remarkably well. In many object lessons the actual object can be got. If it can be obtained it is preferable. If it cannot be got the next best thing is a good picture of it.

9673. You are allowed the agricultural objects?—Yes, or any object that would come under object lessons. These are diagrams which may be taken in the intermediate classes with regard to "Implements of Agriculture" (*producing picture*); "Roots and Tubers" (*producing picture*); "Running and Climbing Stems" (*producing picture*); "Dispersion of Seeds" (*producing picture*). In many of these cases it is possible not only to have a diagram but the actual plants themselves, and it is a good thing to send the children out to collect them.

9674. These pictures are supposed to be on a larger scale than the natural objects?—Much larger of course for class teaching purposes.

9675. How far may the teaching of agriculture be assisted by attendance at classes and making experiments before the class?—If you are dealing with soil it is not much use to tell a child that it is composed of certain parts of sand and clay, unless you can show the child that the apparatus for that purpose is not very expensive. It was suggested that a few tubes might be bought. But there are cases in which one or two tubes won't do. You must take the soil and filter it; let the children actually see that the clay is got from the soil, and that the sand is passed away to the bottom of the glass. You can show them that there is lime in the soil, and I take iron out too. If I am giving a lesson on manures, if it is a phosphate, I don't consider I have satisfactorily taught the lesson unless I get it myself or let some of them come forward and get it. Many of these little things can be illustrated in that way, and it raises the interest of the children.

9676. Do you find the effect of this teaching is to make the children feel they would like to possess a fuller knowledge, or make them more zealous in attending advanced classes?—Yes; there are several such cases in my own school this year. Two or three have asked me if they might not enter under the Science and Art Department for agriculture.

9677. What age would these children be?—One twelve, another thirteen, and another just turned fourteen.

9678. Mr. REDINGTON.—Do you teach agriculture according to the syllabus of the Code?—According to the syllabus from a certain degree. Below the sixth standard I don't. I can give you an idea of how I took out my own lessons.

9679. Mr. STRUTHERS.—Might I ask do you teach it as a class subject or as a specific subject?—As a class subject; we cannot take it as a specific. I am taking Course D. Here are some lessons in Standard 2. I have no standard 1 in my school. The hedgehog, and certain things connected with the farmyard, such as buildings. I always go a little beyond the farmyard—if I teach the farmyard lessons at all—more according to the Yorkshire plan. We rarely see a fold-yard or a stack-yard in this county. The fold-yard is one that cattle can be kept in in winter. They put the crops into barns here. From that I have taken up the dairy and its contents, with butter and cheese-making. The butter has actually been made in front of the children in a bottle, and the curd has been extracted from the milk for cheese-making. Those little experiments are not at all difficult, and many children are able to do them for themselves. Then I follow on with some work in the fields, and in connection with flowers and fruit. The children are recommended to bring those flowers. Let them seek flowers that are out at the time these lessons are given. Then we take up the bee and bee-keeping, but I don't recommend them to bring bees. The following season we take up autumn work in the fields. Then following that, we take up farmers' tools and implements—the plough, the harrow, the roller, the reaping machine, and their uses. Then I follow on with the threshing machine, the drill, the steam plough. Then I take up lessons on the horse. From that we go on to the next standard—stems, leaves, and their uses, any of them that might be used as food, with their description. Than they follow on with the next standard—the contents of the soil, mineral and vegetable matter, how plants feed, soluble mineral food and how it is obtained by the rootlets, and what part of their food is obtained by the leaves; and then, after dealing with plant food, I come to the plant itself. With regard to the feeding of cattle and the storing of manure, I have always found, ever since I have been about here, that the manure seems to be a thing which the farmers can afford to throw away. They don't take the care that they ought to do, though some of them, since the County Council's lectures, have got covered sheds and tanks, and are taking greater care than before. Last night I rode past a farm where it was pitiable to see the liquid manure flowing down the ditches by the roadside. There is no doubt that farmer will give £8 or £10 a ton for some stuff afterwards to supply the loss of that manure. I have taken phosphate and nitrogenous manures, manure applied to grass lands in different seasons, the storage in tanks of farmyard manure, the loss by heat and wet, the necessity for draining. Then stagnant water is shown. Of course the plants show all kinds of insects which infest those

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places. The drainage I always show by having two tubes, one filled with sand and the other with clay, having at the bottom of each tube a cork with a hole. Into each tube I pour an equal amount of water, and the children soon see what retentive power the clay has which the sand has not, for the water is soon through the sand on to the floor of the school room. Then I take up such little experiments as showing the sweetening of land by lime. I take a solution of litmus, show how it is made acid; I let lime act on it so as to make it alkaline; I take a solution of ferrous sulphate and add lime to it; they see the precipitate in it, and they know the thing is insoluble, and therefore the plant cannot take it. I endeavour to fix on them firmly that the plants cannot take insoluble matter. Then I follow up with these diagrams here. We take the steam plough, the plough for horse work, the swinging plough, the double, the wheel plough, and then go on to the cultivators—harrows and their work—and then the steam thresher, with the engines. I don't put up these diagrams and say "Now, you must look here. This is a water drill and seed drill combined. In here you feed the water and there the seed, here there are so many wheels and there so many coulters." But I put them up and let the children tell me what they can see with regard to the construction of them. If a child says, "I see two wheels—two wheels or two shafts," or, "I see a chain," I take it that that is a good answer. Let them have the powers of observation well brought out. As a farmer said the other day, "If you will get these children's powers of observation well brought out with regard to agriculture, they will not make such mistakes as we very often do make." When a farmer tells you he has been buying nitrate of soda, and that it contains 95 per cent. of nitrogen, you will soon see there is something wrong.

9680. Do the children have text books in their hands when you are giving a lesson?—No; they have text books that they can read afterwards, or can go over the subject at another time, and connect the reading with the diagram.

9681. You think text books are useful when they are illustrated by practical experiment?—Very useful indeed.

9682. Have you got any garden or small plot attached to your school?—We have not. The land is very difficult to obtain in our place, and I don't think the managers would quite see their way to go to the expense of it. We should have allotments, but I only know one place in Westmorland where it was tried for one season.

9683. Would it be a help to you in teaching?—Most decidedly.

9684. What size plot would you like to have?—One perhaps twenty yards square: that can be divided up into plots for various little experiments.

9685. How do you get the things you have to show the pupils now—some of these roots cannot be obtained now?—Carrots, turnips, and mangolds can still be obtained.

9686. You mean you could buy them?—I should be more likely to send the children to the farmers to beg them.

9687. It would be a great help to have some way of growing them themselves?—Of course, and I think they would take a far greater interest in them when they pull them up. If I have wanted a certain grass when giving a lesson, I have let a boy go out to see if he can find it; sometimes he will come back bringing all kinds of things—anything but the right one; but the next boy perhaps is very keen to fetch it, and shows he knows better.

9688. I suppose they take a great interest in these practical experiments?—Very great; it would be fatal to attempt to teach agriculture without experiments.

9689. If it is conducted in that way, you think it would be a useful thing to teach in elementary schools?—Yes, because it gives the children a liking for these things, and they will go a little further afield with it; we have, I believe, a sample of every kind of leaf in our school which is grown in the neighbourhood.

9690. Is your school a purely rural school?—Quite.

9691. What size?—My average attendance at the present time is ninety-eight.

9692. How many teachers?—Myself, an assistant, and an assistant mistress.

9693. Mr. STRUTHERS.—A sewing mistress?—Yes.

9694. Professor FITZGERALD.—You and your assistant are both male teachers?—Yes.

9695. Mr. REDINGTON.—If it were a smaller school with only one teacher, would there be any difficulty in carrying on this teaching?—It would not be so easy, because I can divide the school between myself and my assistant, and these lessons can go on simultaneously.

9696. As to the course of instruction that the teachers should have gone through in order to be able to conduct agricultural classes in the way you do, is it your opinion that there should be a three years' course?—It depends on what practical knowledge a teacher may have of farming before he begins to take up this subject; there are some teachers who are farmers' sons, and are capable farmers themselves.

9697. But they have to learn a great deal about elementary geology and botany?—Yes; and that would necessitate their attending some science classes.

9698. Supposing three years could not be given to the subject, have you ever thought of the possibility of teachers going on Saturdays to centres and being instructed in the principles of agricultural chemistry?—That is the very thing we did ourselves here; our centres were held in Kendal, and we came up on Saturdays.

9699. Are the centres still held?—Not for agriculture.

9700. Why were they stopped?—I should say the reason of their stopping was there were no more students to come on; I daresay we thought we knew as much as Mr. Bateman, and there was no need for us to come any more.

9701. You do not know how many teachers there are in Westmorland?—I think in our district we should have possibly 300.

9702. Professor FITZGERALD.—Do you think there are a thousand teachers in Westmorland?—Yes; if you take the Westmorland district, that is, that which is examined by the Westmorland inspectors, I daresay there would be quite a thousand teachers.

9703. Mr. REDINGTON.—Then are there not a great many teachers who have not come to the course yet?—I don't think there will be many left in the schools at present; there may be some who have removed and new ones come in, but I think, on the whole, those who are in situations, particularly in this district, have attended these classes.

9704. Do the farmers appreciate the kind of practical instruction you give in agriculture?—They do, strongly.

9705. What is your opinion about manual training?—I have no practical experience in manual training, only a friend of mine is a great hand at it, and I see a great deal of the work done there.

9706. In a neighbouring school?—It is here in Kendal.

9707. What do you think about it?—I think it is a good thing for the training of the lads; I don't mean to say take them there and try to make tradesmen of them, but let them have such work in this workshop as shall bring out their powers of observation, and teach them to do things for themselves, and make them try and find out how to do things. I don't believe in cutting joints and dovetails all day

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through; let a lad try to make something himself; let him make a drawing of some object, and then let him try and make that.

9708. You would like him to make a completed object?—Yes, if it was only a stone.

9709. Have you seen the cardboard work?—I have not seen it taught, but one of the teachers in Kendal has shown me very nice cardboard ornaments, and some things that are useful.

9710. Do you think it would be useful to introduce cardboard work into a school?—I am not much of an advocate for introducing it; it is like making match-boxes.

9711. Professor FITZGERALD.—Does it not make children handy?—It does.

9712. Mr. REDINGTON.—It is only introduced into the higher standards?—Yes.

9713. Professor FITZGERALD.—Is there anything that could be introduced into the lower standards to make children handy?—I should prefer clay-modelling.

9714. Mr. REDINGTON.—You carry your instruction through all the standards?—Right away through, from Standard 2 upwards.

9715. Professor FITZGERALD.—All the schools do drawing, I suppose?—Oh, yes; compulsorily.

9716. Is there any other art instruction done besides drawing—is the drawing merely black and white—freehand: is there any colouring?—Some cases take up brush-work; there is an alternative scheme of brush-work instead of pencil-work.

9717. Is that taken up at all in the schools?—Yes; but I am not acquainted with any that is bold enough to make the venture; it is expensive to buy the brushes and the colours.

9718. Is not that the principal objection?—It is a great objection to many things in these rural schools. A question was asked about the probable cost of the apparatus for agricultural work; they may be got at all prices, some of them from 12*s*. 6*d*.—quite sufficient to do these things with us—they may go on to 25*s*, or 30*s*., or two guineas.

9719. That would be sufficient apparatus for a school?—Quite sufficient.

9720. Mr. STRUTHERS.—Including such diagrams as these?—You can buy them in so many different ways; if you buy them singly, like that, they are not so expensive—I think the Edinburgh ones are 6*d*. each.

9721. Does your estimate of 25*s*. include those?—No; the first estimate would not be inclusive, but for two guineas you would get a set of diagrams.

9722. Professor FITZGERALD.—You mentioned you thought a small plot would be of use, and would enable you to make some experiments that would be interesting to the children and of use to them—do you think it would be possible to introduce any horticultural training?—Oh, yes.

9723. That might easily be done?—I think in the Code for this year there is a special provision made for horticulture in country schools.

9724. And you think in the upper classes some horticultural training would be of use to the people of the district?—Great use.

9725. Do they grow much vegetables for themselves?—In my place they do not, for the simple reason they cannot get the land; it would have to be a matter of allotment.

9726. You said you would encourage the children to bring in specimens of what you were lecturing on; do you encourage them to make collections for themselves at all?—Plenty of them do that. I don't altogether encourage that, because I want to see what they will bring forward themselves, and I think when they get a liking for it, collecting in one way, they will take it up for themselves in another.

9727. Don't you think it is well to give them some training in systematizing their collections?—Yes; let them collect all the flowers that are out this month, and dry them, and then again the flowers that are out next month.

9728. Would it not be well to encourage them to put flowers of the same order together?—I am afraid that would be rather a long process with them.

9729. It would teach them to know the natural systems?—Oh, yes, I can quite see the value of it.

9730. Would there not be some advantage in getting them to collect insects and fungi, so as to pay attention to the difference in the injuries caused by animals and plants?—The collection of anything alive is forbidden by the Code, and stuffed birds are not to be recommended to be used as specimens in schools, because the Education Department thinks that it fosters cruelty.

9731. Turnip flies for instance?—I am afraid we should have a difficulty in catching them; we might get plenty of such insects as feed on the crucifera plants.

9732. Would it not be interesting to call their attention to the injuries caused by fungi, such as potato disease?—Yes; that would be very beneficial in after-life.

9733. A great deal of experimental work in agriculture has been in pot culture. Would it not be possible to have some pot culture experiments?—We often have them. Sow some oats in a pot, put it into a cold frame, and we get the growth.

9734. You encourage the children to make experiments and observations of that kind?—They don't do it so much themselves; I do it for them. I have a cold frame in which I can put the seed and, when grown, draw them out and let the children see the rootlets.

9735. Could you not make experiments on different kinds of manures?—We make experiments as far as a rough analysis goes. I did let them see how manure containing too large a proportion of free sulphuric acid would soon kill plants. I put it on a little flower bed and they soon saw the result.

9736. Don't you think it desirable to interest children in the making of experiments for themselves?—Decidedly. The more you can get them interested in making these experiments for themselves the more likely are they to follow it on when they become older.

9737. And you think one of the faults of agricultural instruction is that farmers will not make experiments?—That is true.

9738. And you hope future generations will be more willing than their fathers to advance?—The fathers will tell you they have got into too old a groove.

9739. Captain SHAW.—The question has been already asked why agriculture has not been so generally taught in schools?—When Dr. Johnson tried to introduce it into the training colleges many years ago, he only succeeded in getting it into one, and teachers going out would not like to begin to teach. I know one schoolmaster in this neighbourhood who is very highly qualified—better qualified than I am. He says he rather quakes sometimes in teaching it to his boys, because they are so mighty cute. There are several points on which they, being the sons of practical farmers, know more than he does.

9740. Could he not confine himself more to the theoretical part?—I don't altogether hold with too much theory. There is a certain amount of theory you must teach in everything.

9741. I don't mean book work, but such experiments as you have conducted which are explanations of theory; but you need not teach the actual way in which the plough is to be worked or drains made, such as the practical boy knows himself?—Oh, no; nothing of that need be touched. They would be better able to tell me than I should be able to tell them.

9742. Agriculture is only one of a lot of class subjects anyone of which the teacher may take up and earn equal payments which will satisfy his managers?—Yes. Still in making choice of class subjects it is desirable to make use of such a subject as shall be of future use to children in the neighbourhood.

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9743. Do managers object to the teaching of agriculture as a class subject?—I have never known them do so.

9744. But the fact remains, that out of all the teachers who have been taught agriculture here, apparently very few have taken it up in their schools?—That may be from apathy on their own part, perhaps, more than any fault of the managers; although I know of one school at the present time where they are beginning to take it up on such lines as I mentioned here, and the master was only lamenting on Saturday that he was afraid he would have to buy all the apparatus himself.

9745. The cost of the apparatus is also against it?—Well, it is; there is an outlay there.

9746. Which is not incurred in other class subjects. Do you give object lessons as well as agricultural lessons?—All object lessons I give I make bear on the agriculture which will follow in future lessons. All the object lessons up to the end of standard 3 may be connected with agriculture.

9747. At the same time as you take agriculture as a class subject in these standards?—Yes.

9748. That counts as an object lesson?—Oh, yes. It says in the Code—"thirty object lessons connected with plant or farm life."

9749. How far do you think it necessary for them to get instruction in general science, or do you give them any?—No; only so far as is connected with agriculture. Of course sometimes we get drawn away from it a little bit, and get on a little bit of local botany or geology.

9750. Such things as solubility and the pressure of the atmosphere and the composition of the atmosphere?—Oh, yes; and I yet have another series of object lessons which will answer a question asked some time ago by one of the gentlemen around the table. The question was asked Mr. Oilkes—Was ambulance taught in any school by any teacher who attended ambulance classes? I do so once a fortnight, I take up ambulance classes for the children of the school—the binding of fractures and the stopping of bleeding.

9751. Do you do any quantitative work in your experiments?—No.

9752. Don't you think it is desirable the children should be led to appreciate the necessity of such work?—Yes; but it would increase the expense of the apparatus needed.

9753. You never get any satisfactory results from your experiments unless you do treat it quantitatively? If you take the soil you can show them whether it contains clay or sand or lime.

9754. Mr. **Struthers.**—You can measure and weigh roughly?—Yes.

9755. Captain **Shaw.**—But do you?—No, I have not for some years; I did at one time, but I found it was too slow a process to take some soil in and dry and weigh it before the children. It was a very tedious process.

9756. But they might learn some simple quantitative experiments which would give them the principle?—They might take something in volumetric analysis.

9757. As regards the use of text-books, is that confined to the higher standards?—To the higher standards alone—5, 6, and 7.

9758. The lower standards learn from your instruction, and when they are capable of appreciating a book, they are allowed to study from that and supplement any knowledge they have got?—Yes.

9759. Then you don't aim at making these children complete agriculturists?—That is impossible.

9760. You explain to them that there is a great deal more to be learned which can be picked up by future study?—Yes.

9761. In training yourself had you at any time to give up the work of your school?—No.

9762. You acquired the whole of your training while carrying on your school?—Oh, yes.

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9763. And Burton is some distance from Kendal?—Ten and a half miles.

9764. Did you always come by train?—Yes.

9765. But other teachers have come from even more inaccessible parts?—Oh, yes; there is one gentleman particularly in my mind who used to walk ten miles to the station and then come on.

9766. And he carried on the whole work of the school while improving himself?—Yes; so long as these classes were held on Saturday, there was no necessity to lose any school time at all.

9767. I suppose you consider the presence of the central laboratory here is a great advantage?—Decidedly, a great advantage.

9768. Mr. **Struthers.**—The course for teachers has been generally three years before they are supposed to be trained?—It may be, but I don't see the absolute necessity for three years.

9769. It means attending classes on Saturdays only?—Yes.

9770. For three winter sessions?—Yes.

9771. And not at all in the summer?—No.

9772. So it is about seventy-five attendances?—Yes, we get thirty-two in each, ninety-six attendances.

9773. What used each attendance to be?—I don't know; sometimes my attendance was a long one, from ten o'clock to half-past six.

9774. But the regular class meetings?—One and a half, and one hour every morning.

9775. Is your school a purely rural school?—Yes; we are equi-distant between Kendal and Lancaster, and seven miles from Kirby Lonsdale.

9776. You have no standard 1 because there is a separate infant class?—Yes.

9777. How many children would you have over twelve in your school, I mean roughly?—Perhaps twenty-five. I have fifty-three in standard 5 and over.

9778. Captain **Shaw.**—That is rather an unusual proportion?—Yes, we manage to keep ourselves together very well.

9779. Mr. **Struthers.**—You teach agriculture as a class subject from standard 2 upwards to boys and girls?—Yes.

9780. In standard 5 they begin to use a text-book, and then it becomes really a specific subject in standard 5 and 6?—A class subject, not specific.

9781. The ground covered is much the same?—Yes. We only get paid for it as a class subject.

9782. In the lower standards your agricultural course consists practically of a series of object lessons?—Yes, thirty object lessons.

9783. But you choose the subjects for object lessons from the immediate surroundings of the pupils?—Yes, and such as will lead to the lessons which are to follow.

9784. What other class subjects do you take?—Grammar.

9785. You don't teach geography at all in your school?—No.

9786. They have no lessons in geography?—They have geographical reading books and use the maps in connection, but I give no set lessons in geography.

9787. You never bring the pupils up to the map and have the general configuration of the land pointed out?—We have that in the reading lessons. If they are reading about the country the map of the country is put before them.

9788. Have you a special geographical reader?—Yes.

9789. You spoke of apathy on the part of the teachers as being one reason why agriculture was not more generally taken up, but they don't require to teach anything more—they can drop geography. They prefer to take geography then?—There is no doubt they do.

9790. So that it is not a case of apathy?—When I said apathy, I applied it only to agriculture.

9791. Professor **Fitzgerald.**—Do you teach mensuration in connection with agriculture?—We have to teach that in standard 6 and upwards.

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9792. Mr. Struthers.—Why?—It is in the Code. It is not specified there as mensuration; but if an inspector made a test on that there would, no doubt, be a little mensuration in it.

9793. As part of the arithmetic?—Yes.

9794. Professor Fitzgerald.—You don't teach them practically to go out and measure a field?—No, I have not done that lately. I used to give them a chain and send them out into the field to take the length and breadth of it.

9795. Did they take an interest in that?—Yes, they were very keen in taking the chain and dragging it along the road for a mile or two when they were out of school.

9796. Mr. Struthers.—Do you teach any other subjects to standards 5, 6, and ex-6 beyond agriculture and grammar?—We take outline physiology and a few things in connection with ambulance work, because, having girls, I think it is most useful to them.

9797. Is physiology taken under the Code as a specific subject?—No. I cannot take three, I can only take two class subjects.

9798. You could take it as a specific subject?—Our school is hardly large enough for specifics. I take the outline of physiology so that they may better understand what we talk about when working on the ambulance work. We simply take the bony structure and muscular system in a rough way, and if you talk about breaking a certain bone they know where to put the bandage on.

9799. What time a week would you give to the teaching of agriculture?—About 1¼ hours.

9800. One lesson a week?—No, two.

9801. I suppose you consider training in accurate measurement and weighing very valuable for the children?—Decidedly, but it is too costly and too tedious.

9802. Would it not be better they should get trained in accurate observation even if they failed to cover so much ground—would it not be better that they should do a little work accurately than to try to cover a great field?—I don't know; we try to teach such parts of a subject that they will make practical use of afterwards. It is a question if a man who wanted to find out whether his field had lime enough would take the trouble of analysing it. I know some people who never apply a new manure to their farm without first submitting it to analysis; but they don't analyse it themselves, they send it away. If they were qualified to do that themselves it would save £1 1s., but would the loss of time involved compensate them?

9803. Could they not get their children to do that for them?—When we have a certain amount of work to get through to be ready for an examination by the Inspector on an unexpected visit——

9804. Do you think the trouble of getting ready for a visit without notice is greater than a fixed examination?—Oh, no.

9805. But you spoke about doing a little amount rather than an extended amount?—But if they were not ready we might suffer.

9806. Do you teach anything in the evening?—I do—a drawing class for three years. We shall be taking the continuation next year.

9807. You can with your knowledge of agriculture give very useful instruction to lads who had left school?—That is just what one of the farmers was speaking to me about. He thought if there was a continuation school one thing that should not be lost sight of would be following up the agriculture they have in school.

9808. Do you think of starting the continuation school?—One will begin about September.

9809. And agriculture will be one of the subjects?—Yes; if they fall into the view that they would like agriculture.

9810. Do you think the starting of these evening continuation schools will be hampered by their having to take up certain subjects?—No; it is divided into periods of time.

9810A. If you had a class for mensuration, when the pupils had finished, they could go home if they liked, and another class come on?—But every pupil must take up two subjects.

9811. Would not a class of farm lads say "I want to learn agriculture, and I object to learn something else, in order to learn agriculture"?—I think I could talk them over their objection.

9811A. Monsignor Molloy.—Up to what standard do the bulk of the children remain with you?—They remain with me through all the standards up to ex-7.

9812. What would be the proportion of the numbers in ex-7 to the number in standard 4?—At present my ex-7 is lower than it ever has been; I have only three.

9813. What have you in standard 4?—eighteen—so it is one-sixth.

9814. Then the proportion that remained on to standard 4 would not be one-fourth?—Not compared with standard 4. Sometimes standard 4 is rather a large standard in a country school.

9815. When does the principal drop come?—I have now on my books in standard 5 over fifty, and I have an average of about ninety.

9816. Captain Shaw.—You are quite exceptional?—We have another case round about us that is the same way. We have some scholarships connected with our schools, and the boys and girls who have attended the elementary schools for three years are eligible for examination. There are three scholarships; they may have £5, £4, or £3. If they get one of these scholarships, and leave during the year they forfeit the money. I am always very glad when lads or girls obtain these scholarships, because I know I am going to keep them for another year.

9817. At what age do they get that?—Any boy who has passed standard 5, and of the age of twelve: they must make 350 attendances a year.

9818. Professor Fitzgerald.—Is there an infant school besides your school?—Yes; an infant school with an average of fifty-four; that is my feeder.

9819. Monsignor Molloy.—Do you find that the pupils take a very active interest in the agricultural teaching?—Oh, yes; I think they take more interest in that, especially if there are any little experiments going on.

Is that agricultural teaching carried on up to the highest standard?—It goes right through.

9820. Then I think you said it would be desirable that the children should have an opportunity of following on their agricultural instruction after they leave school by means of the continuation schools?—Yes.

9821. But you spoke of that continuation school being given in the evening?—Yes.

9822. Should you not think it desirable that it should be given on a farm where the actual work of the farm could be explained to them?—That could only be done in the summer time, and then you cannot get country lads to come to school in the evening, because they are wanted. Our district is a grazing district, and there is a very great deal of hay work going on, and farmers would not like to part with their lads; it is quite out of the way to talk of giving them a lesson on a farm during the summer, and in winter it is impracticable.

9823. Then the result is, that they could get no agricultural teaching on the farm?—No; but those who are connected with a farm would be getting actual practice daily.

9824. And the theory at night?—The theory at night.

9825. Dr. Wilson.—You were speaking of farmers wasting their manures; what instruction would you give them to save their manures?—I would advise them to have a tank, and save that manure and cart it on the meadows. My school stands just on the border of a dairy farm, and the man has been continually for some weeks now, almost every day, carrying the liquid manure and scattering it on his fields;

he is rather too wise to let it get away as his neighbours do.

9826. Does he apply it in its strength?—Oh, no; he dilutes it. Before he comes to have any great quantity of this he has to get his manure away; he stores the manure in a pit, and must get the manure out before he can get the liquid. I have been there for eighteen years, and I have noticed that wherever he puts the liquid manure he never puts the solid, and he always has a crop quite equal to, if not better, than where he puts the solid manure.

9827. As to the solid manure, what plan do you propose for preserving the ammonia?—I should not let it get too hot.

9828. Do you cover it or leave it open to the air?—If you leave it open you begin to lose other parts by the rain; if too much ammonia was escaping I should recommend it to be trampled down. I would recommend the farmers to get it away as soon as ever they could, and put it into the land.

9829. They could not put it during the winter?—In some cases where they had winter ploughing they could, and then if there is any loss at all by escaping, it would escape into the soil and become useful. I am glad to say that as the outcome of the peripatetic teaching of the County Council you will find that farmers are taking more care of the manure.

9830. Professor FITZGERALD.—And you think it is the result of peripatetic teaching?—I am certain of it.

9831. Do they read the agricultural papers?—Oh, yes.

9832. Did they do that before the peripatetic teachers?—Not so much as now. Mr. Bateman was always good enough when he was giving a lecture to put his back against the wall and let any farmer fire questions at him as they pleased, and he very often gets at them that way; they would say it was in "Farm and Home," and get the paper from that time on. I must say in most of the local papers I found very good articles written by well-known men on agriculture. I don't know that I would take "Farm and Home" or "The Agricultural Gazette" before the local papers—for some things.

9833. Rev. Dr. WILSON.—Do you consider lime a valuable manure?—Decidedly; it would be rather too pointed for nitrates if there were no lime.

9834. In what form would you recommend its application?—It would depend on the soil. If it were a very wet soil, I should be apt to put it on warm; but I don't think it would be any use putting lime on a soil that was very wet. I would first recommend draining the land, getting quit of the stuff that makes the land sour, and then sweetening it with lime.

9835. Suppose the land is dry, do you apply it fresh from the kiln, or mix it with clay?—I should not mix it with clay unless it was a very sandy soil. It is best to put it on in the form of carbonate on such soil as we have here.

9836. How often would you apply it?—I don't know; I should make the test to see did the land require it.

9837. Most. Rev. Dr. WALSH.—You mentioned, I think, that out of an average attendance of ninety or so, you have about fifty-three pupils in standard 5 and over?—Yes.

9838. What is the age of exemption, or rather what is the standard of exemption, in your district?—Standard 3 is partially exempt, standard 5 totally.

9839. So the children who are over standard 5 are attending quite voluntarily?—Oh, yes.

9840. How many of these are there above standard 5?—About forty.

9841. Purely voluntary attendance?—Yes.

9842. Do you think the interesting teaching of agriculture that goes on in the school has anything to do with that large attendance?—No, I should not say so. I think what I said just now with regard to scholarships is more the point that gets the large attendance.

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9843. Or possibly both combined?—You may combine all together

9844. From what source does the money come for these scholarships—the County Council fund?—No; it was left by some of the old parishioners to pay grammar school masters for teaching so many poor children; the grammar schools were abolished and the money was applied to these schools. Another thing which helps them to attend regularly is, that when they get to standard 5, 6, or 7, there are exhibitions of £20 tenable at certain grammar schools.

9845. From what fund?—All from the same fund, a large estate in Durham which belongs to the parish.

9846. Professor FITZGERALD.—Then it is not for the county in which the estates are that the money is spent?—No; the person was a Burton man, but his land was in Durham.

9847. Most Rev. Dr. WALSH.—What is the ordinary size of the schools in your district—what is the range from the smallest to the largest?—In our association district there are some twenty.

9848. Are these mixed schools?—Yes.

9849. And they range from 20 up to—?—200.

9850. Your own school is about 90, I think you said?—Yes.

9851. In how many of these schools is agriculture taught?—I think in only about four so far, although I think before the end of next year it will be more widely taught than it is.

9852. You were asked a question about plots of land attached to the schools; you said, I think, they should be about twenty yards square?—Yes.

9853. To what use do you contemplate putting land of that sort—is it to be used for the purpose of farming or gardening in the ordinary practical sense, or for the purpose of making experiments?—It will be more for the purpose of making experiments. The boys will get practice at a little horticultural work more than farm work.

9854. Do you consider it an advantage to have a small farm in the ordinary sense of the word attached to a school, on which the boys could be put to work to perform the ordinary agricultural operations?—No; I don't think I should favour that with regard to the elementary school at all.

9855. You have no model farms in this district?—No.

9856. No farms maintained for the purpose of showing how agricultural operations can be carried on?—None at all here.

9857. Have you thought whether the maintenance of such farms in connection with elementary schools is advisable?—No, I have not.

9858. Do you think it enters into the work of elementary education?—I don't think so.

9859. But the other system does, that is, the working experimentally on small plots of land?—Yes, that could be made a very good thing in connection with the teaching.

9860. You said, I think, it would be a question of allotments—is there not a compulsory power in England to obtain plots of land for certain purposes?—Yes.

9861. Are there compulsory powers for such a case as this?—I cannot say.

9862. For educational purposes?—I don't think it would be; however, I am not prepared to say.

9863. Do you not think it would be a useful thing if there were such powers?—Decidedly.

9864. Now, as to the syllabus of instruction that you have described to us: to what extent is that your own, worked out by yourself?—I worked it all out for myself, only guided by the lines of the Code.

9865. I suppose the Code only lays down the broad outline?—Yes, the broad principles; and this is what has been accepted—I worked it last year

9866. But the Code does not prescribe it with the minuteness that you have done?—No; for Standard 5 the Code prescribes we shall take up such work on tillage as shall lead to the manner in which plants obtain their food.

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9867. Professor FITZGERALD.—As far as the Code is concerned, you might teach it all out of a book?—Yes.

9868. Most Rev. Dr. WALSH.—You do not use text-books in the lower standards?—No.

9869. And in the higher standards you discourage the use of text-books until after the thing has been learned in the school?—Yes.

9870. Are agricultural text-books used to any extent in your schools?—We have two lessons a week. Supposing I wanted to go to another class, instead of giving that agricultural lesson I should just call out for the books.

9871. What text-books are used?—I use Buckmaster's—Wells' is another good one—Fream's is the best; of course it is the best in price too.

9872. You would not think much of a system of teaching agriculture where it was taught only out of books?—I should not think anything of it.

9873. Possibly you would think it better not to have it taught at all, if it were to be taught in that way?—I would prefer leaving it alone.

9874. Captain SHAW.—You would rather teach geography?—Much rather.

9875. Most Rev. Dr. WALSH.—Do you apply the system of not using text-books to other branches of school work?—Yes, wherever I can.

9876. You have no text-book of geography, but you keep a map displayed in the school when you are reading about a particular country?—Yes.

9877. I think you said there was an attempt made to establish a system of training teachers in agricultural work in the training colleges?—Yes.

9878. When was that tried?—It will be almost since the training colleges were established, somewhere about 1840, and York I believe was the only college which accepted it.

9879. And the system was practically a failure?—It was quite. Dr. Johnston's lectures were prepared for these things, and they never got any further.

9880. But the system of training the teachers at centres was found to be a practically useful one?—Yes.

9881. Were the teachers not merely taught the subject of agriculture themselves, were they also taught how to teach it?—I should not like to start to teach agriculture unless I had seen what I have seen the County Council teachers go through, because their teaching just showed us what we might expect to have to do, and as soon as we saw that it was done we could see whether it would be applicable to the children or not; if not, we could draw our own conclusions as to what could be left out or what put in.

9882. So you learned from their method the art of teaching as applied to this particular subject?—We did.

Dr. J. H. Gladstone, F.R.S.

Dr. J. H. GLADSTONE, F.R.S., examined.

9883. CHAIRMAN.—I believe you are a Fellow of the Royal Society?—Yes.

9884. And you can tell us when the London School Board first commenced operations?—In December, 1870.

9885. Were you a member of the original School Board?—I was not on the original School Board, though I was interested in the question from the beginning. I was on the second Board.

9886. You can tell us, no doubt, what the course of instruction laid down in June, 1871, was?—Yes. In that paper, which I forwarded, there is an extract from the course of instructions as far as object lessons are concerned—that there should be object lessons in the schools throughout the standards, and that they should lead up to science teaching under the Science and Art Department; that was laid down by a committee.

9887. And I see in the note you have handed in that a small box of apparatus was provided for experimental teaching?—Yes; but what I said just now relates to the course of instruction laid down before ever the School Board had any schools in which to teach. Afterwards, when there were schools, there was a scheme of object lessons actually drawn up from the infant schools up to the 6th standard, and that was approved of by the Board on 27th of November, 1878, and instructions to teachers founded on that were approved of on May 10th, 1879.

9888. But the course of instruction laid down in 1871, the original course, includes systematised object lessons, embracing in the six school years a course of elementary instruction in physical science, and serving as an introduction to the science examinations conducted by the Science and Art Department?—Precisely.

9889. The first mention of object lessons occurred in the Government Code in 1880?—Yes, though we had settled our plan and carried it out before that; our scheme which was drawn up only came gradually into use.

9890. Was elementary science at first, though appearing in the Code, only adopted in some London schools?—Only in some—it was gradually adopted; most of the infant teachers were acquainted with object lessons, but they were given very drily and badly, and what we had to do was to give a certain life and value to them.

9891. Were those elementary sciences taught in any other schools except the London Board schools?—Elementary Science appears in the Code as a class subject; it was adopted in some of the London Board Schools; it was adopted in the Hove Board Schools, that is adjoining Brighton; beyond that I am not aware that it was adopted much.

9892. Were specific subjects taught?—Those were taught in accordance with a decision of the Board, and of course they received a grant from the Government. You asked me just now about the little box of apparatus; we were desirous that the children in the infant schools, or lower standards, should make, or at any rate see, little experiments made, and therefore we made up a box of apparatus; I think it only cost 5*s.*, and it was used a good deal in the schools. I could not find a list of the apparatus, but here is a lecture which contains particulars about it. (*Produced.*) We thought that a valuable thing in order to give the little children some elementary notions on scientific things, such as solution, or burning, or such matters.

9893. Have school museums been arranged both in the infant schools and upper departments?—They were considered to be a valuable thing. The Board did not supply the museums in the first instance, but afterwards it was decided to supply them where there was a disposition on the part of the teachers to use them. Where they had got together some apparatus, and object lessons were used as well, then we rewarded them by giving them a little museum cupboard or a cabinet. I believe at the present time there are no infant schools without a museum under the London School Board, and very few of the upper schools. Certain things may be requisitioned for the museum, but generally we prefer the museum should be stocked with different things got by the teachers or brought by the parents or managers. We think it is much more interesting for both teachers and children when that is the case. And if, of course, any of the boys or girls give anything, which they often do, they are very much encouraged by having it labelled that it was presented by "John Smith."

9894. Are the principles of kindergarten carried forward into the upper schools, and what do they include?—We want to have the idea of the kindergarten carried forward, and also there is a good deal of that practice in the way of modelling and cardboard and paper-work. I rather think you got an account of that in London. The clay work has not been done to the large extent that cardboard work has, which serves as an introduction to manual instruction.

9895. Was a special committee of the London School Board on technical instruction appointed in 1883?—Yes.

9896. When did it report?—It reported in December, 1884. I have here the report, which I should like to place in your hands. The subject was then beginning to be talked about. The Rev. Henry Pearson put a notice on the paper that we should give technical instruction in our classes; evidently it was distasteful, and not going to pass. Therefore I moved an amendment that a committee should be appointed to see if we could help technical education in any kind of way. That was carried, and we worked upon the subject to a certain extent; but we found that there was so little feeling in favour of it, or little knowledge about it, that it was useless bringing anything before the Board at that time; so we waited a while, but when that very valuable report of the Royal Commission, of which Sir Bernard Samuelson was the chairman, was issued, people began to think that it was an important subject, and we at once brought forward certain recommendations.

9897. Could you tell us what were the heads of your recommendations?—"That it is not desirable to teach any special trade or handicraft in the schools of the Board." Then that instruction in drawing commence with standard 1, and be carried out according to the graduated scheme laid down for each standard. That increased attention be paid to freehand drawing from models in all schools, and that mechanical drawing and modelling in clay be introduced into certain schools. That greater attention be paid to the teaching of elementary science in the schools of the Board. That the peripatetic plan of teaching mechanics be tried in some districts of London, and that for this purpose the Board be asked to sanction the expenditure of a sum not exceeding £20 per annum for each school in which the experiment is tried. That an experimental arrangement be made for the establishment of a class for the elementary instruction of boys in the use of tools as applied to working in wood, but that the attendance be voluntary and out of school hours. These are the recommendations. They refer to drawing, modelling, and elementary science, but especially to two new matters—this peripatetic plan of teaching mechanics, and the instruction in the use of tools

9898. What is technically meant by the word "mechanics"?—It is mechanics in the sense of the Government Code. Amongst specific subjects there are two columns both headed "mechanics," the one is experimental and the other is not experimental; it refers especially to the experimental one. Mechanics is a very bad term for it. We generally imagine it refers to mechanical power or machinery, but it really is a sort of elementary physics.

9899. What was the result?—That this passed with merely striking out the one clause which relates to expenditure; and the teaching of mechanics in this peripatetic way was commenced in twenty centres in the east of London. Beginning on the 1st of June, 1885, the science demonstrator gave a lesson fortnightly to the boys in standard 5 and upwards, and the class teacher took the lesson on the alternative weeks. The number of demonstrators was afterwards increased to six.

9900. How many were there at first?—One; then it was two, then four, and then five. These demonstrators simply showed scientific experiments to the children and explained them; but it was afterwards thought it would be more educational if the children were to make experiments for themselves more on the lines that are recommended by Professor Armstrong. We had a good deal of discussion on that in some of the committees of the Board. The Board therefore appointed Mr. Hugh Gordon, who had been instructed by Professor Armstrong with the express intention that he should introduce some of Professor Armstrong's ideas into the teaching, which he did very thoroughly, and when he left us Mr. Heller was appointed. You have seen him.

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9901. Yes; he took us to his laboratory. His laboratory is in Berner-street?—Yes. Mr. Heller is carrying out those ideas of Professor Armstrong, but modified by his experience as a teacher.

9901A. Has the School Board employed ladies?—Yes, occasionally. And there is a young gentleman—a barrister—who gives lessons in science in girls' schools in one part of London.

9902. Where do the ladies come from that give these lessons?—I remember one—I was very sorry we did not retain her—who had been taught at Girton, and she had some idea of making that her business in life—giving those lessons. I don't know what became of her eventually. She and the School Board did not come to terms one with another. We have not been very successful in getting those teachers, because the ladies suitable for it are scarcely to be found.

9903. Can you tell me when and where manual training in woodwork was commenced in London?—Before we come to that point, may I mention that there is at present, as you are aware, domestic science in the Government Code?

9904. It is taught, I know?—It has only just been put in. I was at a very interesting meeting connected with the London School Board last Saturday, at which there were about one hundred mistresses collected together, to tell them about it and induce them to give this kind of teaching in domestic science.

9905. Professor FITZGERALD.—Was it there that there was a discussion as to the teaching of domestic science more carefully by means of measurements?—Yes; it is in the last Code which has come out a few weeks ago. This meeting of schoolmistresses was last Saturday. Mr. Heller and Professor Armstrong explained their ideas.

9906. That was to modify it to some extent so as to make it work more experimentally and scientifically?—Much more experimentally and scientifically. We have felt, many of us, that the teaching of domestic economy, although very useful no doubt, was not everything that could be desired.

9907. It was too much in the nature of learning things they were told?—Yes; the teacher wrote something on the blackboard or gave oral instruction on it, and the children did not know what was being talked about. We had some curious instances of that, the teachers themselves not understanding what they were talking about.

9908. CHAIRMAN.—What system is going to be adopted?—I cannot say whether this will be adopted, but there is a movement to adapt it; it is in the present Code, which is a very valuable addition to us, being put there as a subject which will receive a grant.

9909. Professor FITZGERALD.—There is one called domestic economy, principally about food, and another called domestic science?—I mean domestic science.

9910. You think domestic science is a better course than the old domestic economy?—Yes.

9911. And that domestic science could be improved by making it more practical and experimental?—Yes; I think it is intended that it should be made more experimental.

9912. CHAIRMAN.—The system that has hitherto prevailed was that a person demonstrated on the blackboard to the whole of the children certain things, but now they are to see the experiments?—Yes; and the children are to have their finger in it.

9913. Captain SHAW.—This domestic science is practically devised by Mr. Heller?—I believe so.

9914. Monsignor MOLLOY.—I think it has been introduced by Miss Calder in one school in Liverpool?—That may be.

9915. CHAIRMAN.—Now, can we come to the

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manual training question?—Well, another result of this committee was that the manual training in woodwork was commenced at Beethoven Street in 1885, but it was not until 1887 that it was recognised by the Education Department under article 16 of the Code. In the meantime it was so promising that the sub-committee who watched over it were desirous of extending it to other schools, but it was found that the expenditure was illegal and the Board was surcharged with the cost. I may say that the experiments still went on, because the initial cost was eventually paid, and carrying it on cost very little, but, however, that was done by private means.

9916. Is it no longer illegal?—Oh, no; in 1886 the School Board approached the Guilds and City of London Institute on the subject, and in 1887 the Joint Committee was organised, and the teaching of this manual instruction was started at six centres at the expense of the Drapers Company and City Guilds. In 1890 the Education Department allowed manual training in wood to be given as part of the course, and the Science and Art Department gave a grant for it. The School Board itself organised the teaching on a larger scale, and now it is spreading rapidly.

9917. Are these manual classes in London carried on in elementary schools during school hours?—They are carried on partly, at any rate, during school hours. It was first placed outside school hours, but that was a mistake, because it was illegal. Now it is supposed to be part of the ordinary course although we do extend the time a little generously beyond the afternoon school hours.

9918. Are there any general observations with regard to manual training that you could place before us with regard to the state of affairs in Ireland, where most of the schools are rural schools, and more than half mixed schools with only a single teacher?—Beethoven Street, in which it was first introduced, is a mixed school for boys and girls; of course the boys only are taught this.

9919. There are a good many teachers there?—Yes, a great many teachers. It is a large school—no difficulty on that account.

9920. Have you got any experience of small schools, where the staff is not so large?—No, I think we have not; it has not been introduced into our smaller schools. In London we have very few small schools, so that we have had no experience of small schools. For cookery and other purposes several schools are united together and go to a centre. My experience has been really with large schools.

9921. I think you have introduced metal work to a limited extent?—Yes; I am not aware whether there is any Board school in which metal work is carried on, but there is a voluntary school

9922. We saw one school near Burdett Road.

Captain Shaw.—Thomas Street.

Witness.—Then it has been recently adopted. It was commenced with one near Regent's Park, a church school, by Canon Barker; he introduced it with success.

9923. Chairman.—What do you think is the great advantage of this manual training educationally?—I think educationally it has an advantage in producing accuracy and attention. I think also the very fact that the boys are doing something gives them an interest in their work; they do it with much zest, and they gain at any rate those qualities which I speak of; the results are often very wonderful that they produce.

9924. I suppose it is a popular subject?—It is a popular subject.

9925. And is it found that the great majority of the boys are able after a little while to take to it and do the work?—I think so. Of course boys will differ, still the great majority do fairly at it. I do not think it is as educational as several other things, but still it has certain educational advantages.

9926. With regard to girls' schools, when was practical cookery introduced into the London schools?—It was introduced into two schools in 1875, and it rapidly extended.

9927. In how many schools is it taken up now?—In nearly all, but in this case schools are joined; we generally build cookery centres: there has to be a kitchen, and all the instruments. We have usually put a centre in a group of schools, and the children come one day of the week from one school, and another day from another school, and so on.

9928. Have you any case where only a kitchen range has been placed in the fire-place of the class-room, and in all other respects the work has been carried on simply, at any rate, as far as demonstration lessons go, by putting in a table which is taken away again, and the children sitting on their ordinary forms?—I am not aware that it has been done under the London School Board; I have heard of its being done.

9929. When was laundry work first commenced experimentally?—That was introduced experimentally by the Joint Committee in 1889, and the experiment was tried in some old school buildings we had in William Street, Hammersmith, which we used partly for the purpose. Mrs. Lord, I suppose, gave you some account of the laundry work. But the Government almost immediately recognised the laundry work as an important thing, and gave a grant for it, and so it may be carried on now without much expense.

9930. Where is housewifery taught?—That was started in the same room at William Street.

9931. Is that at Hammersmith?—Yes; it is conducted now, and also at Beresford Street, Walworth, which they say is a better centre.

9932. I think you told us already that domestic science is included in the new Code?—Yes.

9933. Did the London School Board, in March, 1887, appoint a special committee "to consider the subjects and modes of instruction in the Board's schools, and to report whether such changes could be made so as to secure that the children leaving school should be more fitted than they were to perform the duties and work of life before them"?—They did; and paid a great deal of attention to the subject, and produced what I think an exceedingly valuable report. That (*produced*) is a copy of the report. Mr. Bousfield was the chairman of the committee. I do not know that the practical result has been so much, but it is an exceedingly valuable report, drawing attention to the matter and modes of education being directed towards practical life.

9934. Have those recommendations generally been adopted by the Board?—They were generally adopted, except one or two recommendations as to the means of putting them in force which were not adopted. However, much has been carried out gradually.

9935. Is it the case that in the pupil teachers' centres, the scientific instruction is according to the syllabus of the Science and Art Department, with some additions relating to natural history and so on?—Yes, it is so. The fact is that it almost must be so. I think it is a pity, but still it almost must be so, because the pupil teachers want their certificates to count afterwards when they go to college, and the Board is glad of the grant that the Science and Art Department gives; and then, besides that, we have introduced some teaching more in the natural history direction, but as there is no grant attached to that and no certificate, I am afraid that rather languishes. There are laboratories in each of those pupil teachers' centres, and chemical and physical experiments are performed by the students. There is a certain amount of good work done, and it enables them also to teach an object lesson. The curious thing is, that it is not required by the Government, because a pupil teacher may pass his or her Queen's Scholarship examination and go right on to a training college without having had any lesson in science whatever.

9936. Professor Fitzgerald.—Can they go through the training college without learning science?—They learn it when they go into the training college it is taught there more or less.

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9937. Do you mean it is not taught practically in some of them?—No; I expect it is taught theoretically more than practically.

9938. CHAIRMAN.—As regards the general principles of the subjects we have been discussing, we should be glad if you would give us any general observations that may occur to you?—Well, I put down here certain principles which I should like to express, that knowledge of things should precede knowledge of words. That is a principle very generally accepted now among the more advanced educationalists. Words mean nothing whatever to the child unless there is some ocular instruction. Words express certain things or actions; they ought to see those actions and things and know them first before they know their names. Afterwards, of course, the names should be given. Literature is an immensely important thing in schools—the literature of language—but I take it that it ought to come in the second place in point of time, the knowledge of things being first. There has been for some centuries a good deal of discussion between *res* and *verba*—the realists and verbalists in education. I think the true solution is that both are necessary, only I should rather place the *res* first of all in time and the *verba* to come afterwards. Of course that applies most to the infant schools.

9939. I think you attach high value to perceptive experimental instruction?—Yes, very high value to that, and I think it should be carried throughout all the teaching in the schools. Of course object lessons are supposed to give that and do give it, but objects ought to be employed and things done as much as possible in reading lessons or any other thing. I mean by perceptive what the Germans call *anschauungsunterricht*, and the French call *instruction intuitive*; I think perceptive is perhaps the best English word for it. Children should be led by their senses to see things, and then to be told more and more about them; that they should be not only taught from books but from illustrations, by pictures or diagrams or things themselves.

9940. What do you say with regard to the value of the training of hand and eye?—I think that is a very important thing; a good deal of what we have been talking about relates to that. Of course the manual instruction, the modelling and drawing and working in wood, I think that is all valuable. I think the expression hand and eye has been too much a technical expression, employed especially for manual instruction. I think one may teach the eye by means of diagrams and many things, the use of colours, &c., which don't come into "manual" at all. I would use the phrase, teaching of hand and eye, in its larger sense to get these senses fully developed. Of course one might include the ear; that is developed by music or clear speaking, articulation.

9941. What do you say as to the relative value of instruction in manual work, elementary science, and domestic subjects, as regards educational value, the training of the hand and eye, the sex and age of the scholars, the character of the district, and the practical services in afterlife?—I put that down because I heard you had a good deal of conversation upon the matter; it is difficult of course to compare one thing with another, but if you take the manual work in wood, as I said just now, it has a certain educational value, but not as much educational value as elementary science, that, for instance, which leads people to think very much, more especially where it is carried out in such a way as it is in Mr. Heller's classes, and classes you have probably seen at Birmingham. And I think that this domestic science would have a very great amount of educational value, and that appears to me to be the most important consideration in a school, the educational value. As to the training of eye and hand, all those three will have some influence in that. In regard to the sex and age of scholars, of course the sex of scholars will indicate that the working in wood will only be done by the boys, and these domestic subjects, laundry and cookery, would be carried out by girls.

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And the age of scholars, I think that all these subjects should be taken rather early in school life, of course with very simple lessons in the first instance, but the children get very much interested in experimental lessons, and then they would be gradually carried on further and further. For instance, I know that little children get very much interested in seeing little experiments made upon solution. If you take sugar or salt, or anything of that kind, and put it into water, they see it goes away altogether. What becomes of it? You can make them taste it, and they will find it is there all the same, and you can get it back again by evaporating the water. All these things are quite within the capacity of small children, and they are very much interested in such experiments. One could mention a vast number of such experiments that might be tried in infant schools. Then as to the character of the district, I imagine that would be rather different in large manufacturing towns, and in such country parishes as you mention. In large manufacturing towns, perhaps, manual work is more important; I imagine that in agricultural districts the accuracy of manual work is not so very important, but a general knowledge of things or of the processes that go on, the simple agricultural processes, and also a knowledge of the earth and of the water, of the air and wind, and such things, is more necessary and more valuable to them. As to the practical services in afterlife, that must depend a good deal upon what the children are likely to go on with afterwards. Manual instruction may be useful not only if they become artisans, but it may enable them to do a certain amount of work in their own homes, and, certainly what is called elementary science, either for the boys or the girls, would be of more or less service whatever they turn their hands to, if they are made handy and intelligent. I don't think I have used the word "intelligent" yet, but of course the great object of this is to make them intelligent, and if they are made intelligent they can turn to anything afterwards in afterlife.

9942. What do you say with regard to the question of comparative expense?—I don't imagine there can be much doubt about that. The manual work requires a certain amount of material and tools and benches, and requires, I should say, a room set apart for the purpose, and generally requires a special teacher, so that it is a little costly. Elementary science requires a certain amount of apparatus too, of course, and a little expenditure; there is the waste of materials, always going on to a certain extent, but I do not think it is nearly so costly as the manual work, nor do I think would be the domestic subjects, unless one went very fully into housewifery and had very elaborate arrangements; you do not destroy you tables or fires or stoves; I think that is rather what I imagine would be the position. I think all of them are worth the money that would be expended upon them, but still in the poorer districts that may be a matter of importance.

9943. Most Rev. Dr. WALSH.—I believe that object lessons, Dr. Gladstone, will now form an obligatory subject in the English school Code?—Yes.

9944. There is a point in connection with this that perhaps you could explain. The Code seems to distinguish between elementary science and object lessons. I should wish to know what is to be understood by object lessons—is it object lessons of a non-scientific character, or object lessons in which the students will be introduced to a knowledge of science?—I have not really studied this sufficiently. I think this is a matter of chronology. They are obligatory after the 31st of August, 1896.

9945. Yes; but what I want to know is what exactly is meant by object lessons. It seems to be something distinct from elementary science, for elementary science is set down in the Code as a subject which continues optional. I take it, in your personal view, object lessons ought to be made use of as an introduction to science?—Certainly.

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9946. Kindly look at page 46 of the Code, where the courses are marked out. It seems a sort of contradiction; object lessons are there made identical with elementary science?—Yes.

9947. There are a number of courses mentioned—please look at course H, which deals not so much with any particular branch of science as with scientific methods in general?—Yes.

9948. May I take it that you prefer such a course as that, to instruction in particular branches of science?—Yes, I should. I think I should like that course H.

9949. You don't think it desirable that any special branch of science should form part of the elementary school work?—No; I should much rather teach the children principles of science than to make them specialists in any particular one.

9950. Then the scientific teaching should not be given so much for the sake of the information imparted, as for the mental training?—The mental training is of the first importance; the other is secondary.

9951. I think you mention in one of your essays that there are three things that attention should be given to—first, the children should be taught to observe; secondly, they should be taught to interpret what they have observed; and, thirdly, to describe it?—Yes.

9952. Do you attach much importance to their being led on to describe what they have seen?—I think if they are required to describe it either by word or in writing it makes them more careful in observing, and also probably makes it more fixed on their memory.

9953. And it is not also a useful exercise in language?—Unquestionably.

9954. You said, I think, that manual instruction, although it has certain educational advantages, should not be regarded as the most important of school subjects in that respect?—Yes; that is my opinion.

9955. Probably you think that elementary science should be awarded the first place?—I am inclined to think it should be.

9956. You would not think of putting either of those in comparison with spelling or grammar, for I observe in the recommendations of this important report in the School Board Committee, March, 1880: "That in order to allow time for experimental teaching and manual work, the time now given to spelling, parsing, and grammar generally be reduced."?—That is a very important question with us. We shall have perhaps to omit some subject to make way for manual instruction or elementary science.

9956A. You would not consider it much of a disadvantage to have to cut down the time given to such subjects as grammar?—No. I think the way in which grammar is generally taught in our elementary schools, the less of it the better, and I think that is the general opinion in London now.

9957. What about spelling?—Well, spelling of course is an absolute necessity, that they should somehow or other be got into the irregularities of English spelling. It is anti-educational. But I do not think the amount of attention ought to be paid to it that is paid now, or that it should be commenced so early.

9958. I remember once meeting with a saying of yours, that if people would be content to go on spelling in the way that Shakespeare and Milton spelt, they could get on very well?—Yes.

9959. But such people could not pass the inspector?—No; Milton had his own views about spelling that would probably upset the inspector.

9960. You have a strong opinion against the system of payment by results?—Oh, yes.

9961. You expressed it strongly some years ago. It would be interesting to know if you still retain that opinion?—I still retain it.

9962. You spoke of it, I think, as an abominable or execrable method?—Did I?

9963. I think so. At all events, you don't consider those adjectives too strong?—No. I did not think I used quite such strong words.

9964. Rev. Dr. Wilson.—What are your grounds for such a strong condemnation of the results system?—Because I think it led to unintelligent teaching, merely cramming children with supposed knowledge so that they would be able to answer the inspector when he came.

9965. Suppose a lad rises early and reads closely for information, won't that information lie in his mind for life?—No. I believe if he gets it up rapidly it does not remain in his mind. I can give a curious instance of that.

9966. Monsignor Molloy.—Within your experience, Dr. Gladstone, a certain number of subjects of practical work and practical teaching have been introduced into the system of elementary education under the London School Board?—Yes.

9967. For instance, woodwork, drawing, the elements of science, cooking, laundry, and domestic science?—I think drawing was from the beginning, but it has been extended.

9968. Do you find that the teaching of the ordinary subjects, such as were previously taught, has suffered anything by the introduction of these practical subjects?—No. I fancy the children have been made more intelligent and they have generally improved.

9969. That is your experience after seventeen or eighteen years as a member of the London School Board?—Yes, it would be difficult to compare; I don't suppose anybody could.

9970. But your experience has been sufficiently long to enable you to form that opinion with considerable confidence?—Yes.

9971. You are acquainted with the method of teaching elementary science under the Department of Science and Art?—Yes.

9972. That method consists chiefly in lectures given by the teacher, illustrated by experiments made by himself?—Yes.

9973. Do you think that method can be improved?—I think it can be improved by the experiments being done to a certain extent by the students.

9974. You think it of great importance that the pupils should be made to do some practical work themselves and led on to make experiments, and as it were to discover the principles of science for themselves?—Yes.

9975. You referred to the introduction of that method under the London School Board by Mr. Gordon?—Yes.

9976. Did you find that that change was attended with satisfactory results?—Well, I have no doubt it was. It is a little difficult to answer such a question, the London School Board district is so large. To a certain extent it was done before in our object lessons, and there was a good deal of practical teaching gradually growing up in our schools. The change under Mr. Gordon was simply in one part of London, Tower Hamlets, with which I am not familiar myself, and so I could not observe it.

9977. At all events you are quite clear it is a better method?—I am sure it is, and I never saw a class so interested in any scientific lessons as I did under Mr. Gordon.

9978. It cultivates the faculty of observation and stimulates the thinking powers?—Yes.

9979. But though you consider that method best, you would not exclude the lectures given by the professor and experiments made by the professor in the presence of his class?—Oh, no; some things he must do himself.

9980. You would recommend the two methods combined?—Yes, a demonstrative and experimental.

9981. You would desire that the method of Mr. Gordon should be extended as far as possible to other elementary schools?—Yes.

9962. Mr. Struthers.—I think you said that knowledge of things should precede knowledge of words. I suppose you would allow that words are indispensable to clear knowledge; I mean to say, to have a clear and accurate knowledge of a thing you

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must be able to describe it in clear and accurate language?—No; I think we know a good many things before we can talk about them.

9983. Can you be said to know them accurately?—I think a deaf and dumb person understands a great many things pretty accurately.

9984. As accurately as a person who has a knowledge of language?—A knowledge of language is valuable unquestionably.

9985. My point is this, that for the clearest knowledge of any subject one needs more than the faculty of observation; you cannot have a clear and accurate knowledge, I should suppose, without a clear use of words; I mean to say that accurate definition is an essential for clear knowledge?—I don't know that I should agree altogether to that; it is very desirable, of course.

9986. The accurate use of language would, I suppose, afford a valuable means of mental discipline?—Oh, yes.

9987. But not so valuable, you think, as manual instruction, say?—No. I think that the knowledge of things themselves is more valuable through the senses, and so on, than merely what you gain through words, through speech; but of course the two help one another. The teacher would naturally use words.

9988. You would not go the length of saying that a knowledge of words should go along with a knowledge of things?—A knowledge of words must go along with or follow a knowledge of things.

9989. You spoke of manual instruction as not being so valuable educationally as some other subjects, and you mentioned science as being one of those subjects?—Yes.

9990. Could you mention any others you would consider more valuable than manual instruction?—It is very difficult to compare certain things which are very different. You may get a great deal of valuable information from learning a foreign language, but I don't know how to compare that with manual instruction or elementary science.

9991. But I am taking your statement that manual instruction did not give such valuable results as other subjects?—I was comparing it really with elementary science, and domestic science, and cookery, and those matters.

9992. Then if we come to compare science with manual instruction we have got to distinguish to a certain extent. You know science is very commonly taught in schools in a way that would not satisfy you—taught from a text-book, a science reader, as it is called, with an occasional illustration. Then there is a more improved form of science-teaching in which the teacher gives a demonstration to a large class, but the children themselves have no means of performing an experiment practically. Neither of these is the form of science teaching you have in view in comparing it with manual instruction?—No.

9993. The form of science you have in view in comparing it with manual instruction is such as is taught by Mr. Heller?—Yes, something like that.

9994. Where the children have the opportunity of doing the work each for himself?—Each for himself, and being gradually initiated and seeing the meaning of it, the intelligence drawn out.

9995. It is the individual training you would lay stress on?—Yes.

9996. But that individual training is got to a considerable extent in manual instruction?—Yes.

9997. If the superior merit of Mr. Heller's science teaching lies in the individual training it gives then it is because it possess the same qualities as manual instruction?—I think it is wider than manual instruction, because manual instruction as carried out in this woodwork is confined to solid bodies, matter, and form; with regard to the others you have to do with solids, liquids, and gases, and measure them all.

9998. But you would not attach any importance to gaining miscellaneous information about the air and water and so on; it is the individual training you lay stress upon?—Yes; but I think the individual training should be carried out on a variety of substances, I think it is rather a failing in Professor Armstrong's syllabus in that respect that it is a little too limited in the subjects he works upon.

10000. Mr. STRUTHERS.—That is why you approve of this scheme of domestic science, that it applies the same principles to a wider range of subjects?—I think it does.

10001. CHAIRMAN.—I want to ask in what respect, Dr. Gladstone, would you recommend Professor Armstrong's syllabus to be enlarged?—I think Mr. Heller has enlarged it and made it more suitable as an educational subject.

10002. Would you illustrate that with an example?—I don't think he spends so much time on getting all the various properties of a piece of chalk, he has somewhat limited the knowledge of his pupils on a piece of chalk, in order that they should learn something about a pieces of coal or a lump of iron.

10003. Mr. STRUTHERS.—That brings us back to the very important statement we had from a witness this morning, that he did not object to accurate measurements himself, but suggested that if you take children through quantitative measurements, it takes so long, it becomes tedious to the children, and there being no necessity for accurate measurements, it is better to take them over a wider range of subjects. The tediousness of the process might be an objection?—I think the great thing is to get the children to weigh and measure accurately, but still, of course, it may be carried to an extreme.

10004. In order to have science properly taught, in your view, you must have teachers specially trained?—I think so.

10005. You would not consider the science teaching given in training colleges sufficient?—No.

10006. Of course science is practically compulsory in training colleges?—It is compulsory, I think.

10007. In any case marks are given for science, and if they don't take science subjects they lose marks?—There are two things—marks may be given to the pupil teachers who go up for the scholarship examinations, in order to enter the training colleges, but I said they could do that without any knowledge of science whatever. Of course they can do better if they bring up some marks. I think every training college gives more or less instruction in science when the pupil arrives there.

10008. But they prepare the pupils for a definite examination in the Science and Art Department, physiology, or elementary chemistry, whatever the subject may be?—Yes.

10009. One student may take up two subjects, another one, and they get a certain number of marks for each?—Yes.

10010. And you don't consider that style of teaching quite satisfactory?—No; I think every pupil teacher——

10011. I am speaking rather of the students in the training colleges?—I would rather, of course, with this science, see somewhat of a more practical character in the training colleges.

10012. You would not have them study a separate science, but the principles of physical science generally?—I would prefer that.

10013. Prepare them to carry out a similar course to what Mr. Heller has in London?—Yes; with a broader knowledge probably.

10014. Captain SHAW.—Did I understand that the object lessons were originated by the London School Board?—Oh, no. They go much further back; they go back to Pestalozzi.

10015. I see in the Instructions to inspectors that "It is most important, therefore, that if for example, object lessons are given on plant life no attempt should be made to treat them as a continuous introduction to the study of botany, or if the lessons relate to animal life, to the study of zoology." Do you agree with that?—

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Most Rev. Dr. **Walsh**.—It was partly in connection with this that I called your attention to the article in the Code distinguishing between object lessons and elementary science.

Mr. *Bernays*.—What is done is this—where elementary science is taken up in the upper standards it is not at all uncommon for the teacher to take object lessons distinctly bearing upon the course taken in the upper standards in the lower part of the school, and I have passed those as being object lessons in the sense in which the Department intend them.

10017. Professor **Fitzgerald**.—Then you don't agree with that statement, that it is desirable they should not be done?—

Mr. *Bernays*.—No.

10018. Most Rev. Dr. **Walsh**.—There is another passage here that seems to require some explanation—"Object teaching should be distinguished from instruction in natural science"?

Witness.—Surely it is the first stage in it. The first step is towards systematic science.

Mr. **Struthers**.—There might be this explanation—that they don't wish the object lessons to be confined to the narrow range of subjects that would be introductory to certain sciences.

10019. Captain **Shaw**.—Then do you consider such things as a farm-yard and a stable object lessons?—No; because you cannot bring a farm yard into a London school at any rate; at least, I believe we have only two farms in the west of London.

10020. It is one of the things that is mentioned. If you take that it rather leads to sketchy observation than any general teaching of observation. Is it not necessary that the object should be in front of the children, and the child should make the most of it?—There ought to be some wisdom in the choice of objects. A farmyard can only be meant for country children.

10021. Professor **Fitzgerald**.—Would it not be well to bring the class into a farmyard while the lesson was going on?—Certainly; that is the only way to do it.

10022. Captain **Shaw**.—Would you consider it desirable that both science teaching and some form of manual instruction should be added to the ordinary curriculum of every school?—Yes, I should think so; but in some schools it may be difficult to carry them both out.

10023. You do not consider that one entirely replaces the other?—No.

10024. Does it not also give children a better chance of ascertaining what they are capable of doing if they have these three subjects, and finding a fitting calling for themselves in life afterwards, than if merely confined to literary work?—Yes.

10025. Then, as regards the use of text-books in school, they used to be universally used, now they have gone entirely out of fashion, and a child depends to a great extent on what he learns from his teacher. Do you recommend that text-books should be used?—I should not recommend the use of the text-book in the lower standards of the school. I think they may be used often in the upper standards.

10026. In the upper standards a boy is able to appreciate what he gets in the book, and can teach himself to a considerable extent?—Yes.

10027. But that does not apply to the 5th standard?—No, I think not.

10028. Professor **Fitzgerald**.—From your experience of the history of this subject, do you gather that the teacher's interest in science teaching has increased since you first began?—Yes.

10029. And the public interest in it has increased?—Very much.

10030. Is there any sign of that decreasing?—No.

10031. No sign that it has already gone too far?—I think not.

10032. It was mentioned here about making school museums: do you think it is desirable to encourage children to collect for themselves?—Yes, I think it opens their eyes.

10033. Don't you think that might be done, especially in the country?—Yes, or anywhere.

10034. To make collections for themselves, as well as to make collections for the school museum?—To make collections for their own museum; I have little doubt it would lead to their making little collections for themselves.

10035. If you once get a museum collected in a school, the children of future generations are not interested in collecting for it, because it has got everything in it already, so unless you encourage the children to collect for themselves you won't go on systematising their collecting instinct?—There is something in that.

10036. Do you think the collecting instinct of children should be utilised and taught to make them systematic?—Yes.

10037. Does not manual education utilise their constructive instinct?—Yes.

10038. In teaching domestic science to girls, is it not very desirable they should be taught to do accurate measurements?—Very desirable in cookery and such matters.

10039. And in all science teaching is it not desirable they should learn to make accurate measurements?—Decidedly, it includes weighing.

10040. And measurements of length, and if possible lead them to measure volumes?—Yes, and density.

10041. In addition to learning to make accurate measurements, does not science enable them to learn by making experiments?—Yes; gives them the habit of making experiments.

10042. That is entirely different from the training that is given by manual training?—Yes.

10043. And in that respect science training differs essentially from mere manual training?—Yes, I think it does.

10044. Is it not very desirable to cultivate that habit of making experiments by a course of science teaching?—Yes.

10045. And it is with that end you recommend that course that Mr. Gordon proposed?—Yes.

10046. Could it be modified so as to be an introduction to agricultural teaching?—I should think so.

10047. So that the principles that underlie it are not necessarily bound up with the particular course be has?—Oh, no.

10048. The same principles might be applied so as to lead up to agricultural training?—Yes.

10049. Do you think one of the objects of the school course should be to teach children to learn from objects around them, and another object should be to teach them to learn from books?—Yes.

10050. And that neither of these ought to be neglected?—Neither should be neglected, though I think they should learn from the objects first.

10051. Do you think that domestic science teaching can be made of real educational value?—I have no doubt it can; I did not see the syllabus until a few days ago, but I have no doubt it can be of educational value.

10052. Mr. **Redington**.—What is the educational value of cookery as apart from its practical utility?—This, that first of all it teaches accuracy, the same as woodwork does; you must have certain quantities and proportions to give a good palatable dish: and then, of course, there is a good deal of educational value in seeing the effect of heat, and the time of action, and the number of different manipulations connected with cookery.

10053. Would you think that a course of cookery ought to be accompanied by some elementary science teaching?—I think it would go very well along with what is called domestic science in the Code now.

10054. You said just now that in standards below the 5th you don't think text-books are of much value; would they not become useful in cases where the teacher was below the average?—I was always supposing a good teacher.

10055. But all teachers are not good, and even

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with a good teacher would it not be well that the pupil would have an opportunity of reading over again the subject of the lesson orally given by the teacher?—Of course. If there was a specially bad teacher there is a great tendency to depend on the book.

10056. Does not oral teaching without a text-book imply a specially good teacher?—It requires a specially good teacher.

10057. And the average teacher not being very good, would it be wise to discourage text-books?—When I said I did not care about text-books, except in the lower standards, I meant text-books in the hands of children, or text-books read to children.

10058. But might it not be of use to the pupils to read over again a description of the experiment which they had seen the teacher giving?—Yes; no doubt, if there are the experiments and illustrations.

10059. Professor Fitzgerald.—Is it not the result of your experience that the pupils having text-books in their hands do not learn from experiments?—That is the danger; the teacher and the child are inclined to depend on the text-book.

10060. What is the objection to both things being given, the oral lecture and the reading about it afterwards?—If you can keep the text-book in the background, only to be looked at after the lesson is given.

10061. I think you said that grammar might be omitted in some of the standards; in speaking of grammar, do you mean to include parsing and analysis of sentences?—Yes.

10062. Are they not of great educational value?—Not for small children; I don't think they ever understand them.

10063. Would not the study of the analysis of sentences tend to sharpen the wits of the children?—Not with small children.

10064. What standard are you referring to?—Here and there you will find a child who can understand parsing, and so on; of course, a child of eight or ten may understand some of it, but take a class even of eleven or twelve and examine them, and I think you will find very few really do apprehend the thing.

10065. Take a child of eleven or twelve, would the analysis of sentences not tend to develop its intelligence?—There would be only some children who would really show themselves capable of apprehending it.

10066. And yet they could understand a scientific experiment?—Oh, yes.

10067. Is that easier than to understand the breaking up of a sentence into its parts?—Much easier.

10068. Is it of equal educational value?—Yes, I should think so.

10069. Most Rev. Dr. Walsh.—Kindly tell us what advice you would give us in connection with the introduction of the teaching of science into schools: if you considered that the plan we had in view was one that would leave it perfectly optional to the teachers to teach science exclusively out of books, without either performing an experiment, or having an experiment performed, from the beginning to the end, or without letting the pupils ever see anything connected with physical science, except possibly a text-book, would you advise us to go on, or would you seek to dissuade us?—I think I would dissuade you, I think you ought to go to better things.

10070. Suppose, moreover, that our contemplated system was to be one in which the result of the teaching, or so-called teaching, of science was to be tested only by an examination conducted exclusively in writing, and conducted on such lines that a boy might get the highest possible marks who had never performed an experiment or seen an experiment performed, or had never seen any scientific apparatus, even of the most rudimentary kind?—I should say you ought to protest against that system.

10071. And you would probably add that the less you had of it in a country the better, in the interests of science?—Yes.

10071a. Mr. Struthers.—I suppose you would consider that science need not *necessarily* be taught in schools in the same way as reading, writing, and arithmetic must be?—Reading, writing, and arithmetic cannot be dispensed with.

10072. You would not have science taught, except by a competent teacher?—I would not have reading, writing, or arithmetic taught by an incompetent teacher.

10073. You can have them taught by a very moderate teacher, but you would not advise such teachers to take up science; we have many teachers who are able to teach elementary subjects in a more or less perfunctory way, you would not advise those teachers to take up science?—You cannot expect an old established teacher late in life to take up something with which he is not familiar.

10074. Would you advise a teacher to take up science teaching in a school who had to supplement his knowledge of the subject by relying on a text-book?—No, if you mean by that that he is to read simply from a text-book, no.

10075. Professor Fitzgerald.—But would it be easier to get a bad teacher to teach science or to get one to teach grammar?—I think that they generally learn enough grammar in the training colleges to attempt to teach it.

10076. Monsignor Molloy.—Do you think it is really more difficult for a teacher to learn to teach elementary science well than to teach other subjects well?—I don't know that it is, there are some teachers who can teach reading, they can write and read and do sums, but there is a large proportion of the population who cannot do that.

10077. If a man is competent to learn to teach reading, writing, and arithmetic efficiently, don't you think he would be able to learn to teach science efficiently?—Yes, if he is an intelligent teacher.

10078. Mr. Struthers.—But the point is he must teach the one, he need not teach the other?—No.

Mr. Arthur E. Bernays, H. M. Inspector of Schools, further examined.

Mr. Arthur E. Bernays.

10079. Chairman.—I believe, Mr. Bernays, that you wish to make some observations supplementary to your evidence at Carlisle?—There are only two remarks, my lord. One is with regard to the curtailment of the present subjects, and the other as to the choice of subjects. With regard to the curtailment, with all due deference to what Dr. Gladstone has said, and after a long experience of the subject I do hope that English—I say English advisedly—not grammar, will not be abandoned. I would far sooner see the time deducted from arithmetic and spelling, so that English may still hold its position. Of course the mere technicalities of grammar, I never ask for or expect, but I do think it is of educational value to get a child to recognise the parts of speech and to analyse them in a sentence; and the expression in one of the blue books, that "English is the logic of elementary schools," admirably summarises my views. With regard to the other point I venture to hope that the central body will give absolute freedom of choice, except as to needlework and drawing, to local managers respecting these subjects. For a very

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long time we in this country were paralysed by the action of the Education Department in London, where everything was cut and dried, every point laid down, and teachers and managers had no freedom of choice. I would suggest, therefore, that such a cast-iron system, if it exists in Ireland now, should be modified or, if possible, discarded. I had a small instance of it in two schools I happened to look into in county Derry. The teachers had no choice as regards geography. I happened to ask the children what was the capital of England, of the United Kingdom, and they had no idea whatever; whereupon the teacher told me they were then learning the South American Republics, according to order.

10080. Most Rev Dr. WALSH.—Geography is not a compulsory subject in England?—It is optional among the class subjects.

10081. But neither geography nor grammar is compulsory in England, in any standard or in any school?—No.

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TWENTY-FIRST PUBLIC SITTING.—FRIDAY, APRIL 9TH, 1897,

AT 11 O'CLOCK, A.M.,

At the School Board Offices, Barrow-in-Furness.

Present:—The Right Hon. the EARL of BELMORE, G.C.M.G., in the Chair; The Right Hon. C. T. REDINGTON, M.A.; The Right Rev. Monsignor MOLLOY, D.D., D.SC.; Rev. HAMILTON WILSON, D.D.; Professor G. F. FITZGERALD, F.T.C.D.; Captain T. B. SHAW, and J. STRUTHERS, Esq., B.A.,

with J. D. DALY, Esq., M.A., Secretary.

Mr. A. Hawcridge.

Mr. A. HAWCRIDGE Superintendent of Schools to the Barrow-in Furness School Board, examined.

10081. CHAIRMAN.—I believe that you are a Superintendent of Schools under the Barrow-in-Furness School Board?—I am, my lord.

10082. Will you give us a statement of the elementary principles which must limit the aims of those organizing and giving what is commonly termed manual and practical instruction?—I consider the primary aim in all manual and practical instruction as connected with elementary school work should be educational. The economical advantages accruing from the work should be purely incidental. I consider such advantages would naturally follow if you secured a good educational aim. If the aim of this work is to be educational it must be limited by the same laws as other educational work in the school. Therefore, it should be organically connected with the other work of the school, and should be similarly planned in order to secure the interest and attention of the pupil. I believe the demand for this class of instruction has really arisen from the success of the kindergarten instruction in the infant schools, which has proved to be so valuable in furthering the other work of the school, as well as in developing manual dexterity.

10083. Was kindergarten introduced before the manual work?—Oh, yes.

10084. When was kindergarten first introduced?—In the form of what was styled "varied occupations" it has been in use in the Barrow schools for over ten years, and it was therefore necessary before beginning manual instruction in the standards to carefully examine the kindergarten exercises of the infant schools; if necessary, to organize to some extent those exercises, and then to base upon them the work of the standards.

10085. But they at first confined kindergarten to the infant schools?—Yes, entirely.

10086. Then there was nothing of the continuation of kindergarten at first in the higher standards?—Nothing at all.

10087. When you first began to do something in the standards did you inaugurate the work in all the standards or only in the higher standards?—Our first attempt was in the higher standards by giving manual instruction in cookery, laundrywork, and woodwork.

10088. Then you had a gap between the infant schools and the standards in which manual instruction was taught?—Yes.

10089. Afterwards you bridged that over by developing the kindergarten work?—Yes.

10090. Will you describe to us the attempts made in Barrow-in-Furness to secure the aims the School Board had in view with regard to manual instruction?—In the first place I entirely re-organized the work of the infant schools as far as kindergarten occupations were concerned. Up to this time teachers had been given considerable latitude in the use of what were called "varied employments," and I found it was getting the fashion amongst individual teachers to change their "varied employments" annually for the sake of novelty. They did not consider so much the educational aim of the employment or the occupation as its novelty. Consequently I found that much work was not educational, but simply keeping the children employed. I therefore re-organized that work and at the same time attempted to base a scheme for standards 1 to 4 on the infant scheme. I have laid before each of you a copy of this scheme. Thus was bridged the gap between the infant schools and the work of standards 5, 6, and 7. But still we were missing in standards 5, 6, and 7 the training of the sense of colour, and we have tried since then to keep up the colour work in standards 5, 6, and 7. My idea was that you train the sense of form and measurement by woodwork exercises, but not the sense of colour. Therefore, we attempted to keep up the training of the sense of colour by keeping up the colour work in standards 5, 6, and 7 in connection with drawing. The first page of the scheme laid before you is a scheme of work for infant schools, tabulated, showing the connection of every subject in the school with kindergarten occupations. You will understand that special prominence is given to form and colour, and in the following sheets there are details of the lessons in the study of form; the first year's course being for children of the second year in the infant school, and the second year's course for the children of the third year in the infant school. My idea in going into such detail was this—that as that was to form the basis of the work of the standards it was well to have it, if possible, carefully mapped out.

10091. I should like to ask with regard to the first year of the infant school. I see under the head of sub-divisions there are descriptions of objects such as the sphere, the cube, and the cylinder; at what age do the children take this branch?—Five years of age.

10092. Of course the words that appear here are used in speaking of them?—Yes.

10093. At what age do they know enough of reading and writing to be able to understand what these words are when they see them on the blackboard?—You must remember, my lord, that the blackboard would be very little use there. Each child would handle the solid, and by the feel of the solid and understanding its qualities he would want to give a name to it, and, therefore, the name sphere would be used and an exercise in naming would be given.

10094. Then he would acquire the information from oral teaching?—Yes, and from examination of the solid. The work is really Froebel's Gift II.—the sphere, cube and cylinder. In the second year the sphere, cube, cylinder, hemisphere derived from sphere, square prism which is different from the cube, and the triangular prism as apart from the square prism, being the half of it, are considered.

10095. At what age are the children when they learn that?—Six years of age. Then in standards 1, 2, 3, and 4 I begin to give more freedom to the teacher by simply suggesting. I suggest in the third year (standard 1), revision in greater detail of the six solids of the first and second years. My idea in that was that we might have children coming into the standards who had not been through the infant school course, also that we might revise and strengthen the ideas gained in the infant school course, and on that try to give a greater degree of proficiency in the use of the ruler and measurements.

10096. The children in the third year would be about seven years of age?—Yes. Then in the fourth year we consider the solids from which curves would be derived, viz.: the ellipsoid as developing the ellipse, and the ovoid, developing the oval. Afterwards the equilateral triangle is considered, and then comes the continuation of exercises in the use of the ruler and a consideration of proportion and symmetry. We had found, and the Art Department of South Kensington told us, that the weakness in the freehand drawing in Barrow had always been lack of the knowledge of proportion and symmetry, and therefore special consideration was given to the teaching of proportion and symmetry. In considering all these solids we try to impress the lessons by modelling in clay and in carton paper, by folding, cutting and mounting coloured paper, and by drawing and colouring. The work of the fifth year (standard 3), is mainly based upon the drawing syllabus of the Science and Art Department.

10097. The children being at what age?—About eight years of age or nine years.

10098. Having begun at four years of age?—Yes. In the sixth year (standard 4) the work is still further developed, the idea being to let these exercises follow naturally one on the other, so that the work of one standard may be taken up where the other leaves off, thus continuing the work and deepening its effects. At the time I issued this scheme, I also issued certain notes and suggestions to the teachers, which you will find in the next sheet; notes on the working of the infant school and notes on the working of standards 1 and 2. I also give you a copy of our cookery school course, our laundry school course, and our course of wood working exercises. I think I need make no further observations, except that you will notice that I have tried throughout to connect all these occupations with the ordinary school work. The aim has been to develop an appreciation of form, colour, and accuracy of measurement.

10099. Will you give the statistics as to the number of pupils taught and the cost of teaching, &c.?—I have placed before you a copy of the balance sheet of the cookery school, the laundry school, and the wood-work class for the past five years, and from those statistics you will notice that for the year 1896 the cost of teaching cookery has been to the rates £26 19*s*. 8*d*., and for that amount we have taught during the year 1,140 pupils, of whom 970 earned a grant from the Education Department.

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10100. That was for appliances?—No; the actual cost of teaching. The expenses involved in the payment of teachers, provision of material, fuel, repairs, and so on.

10101. Professor FITZGERALD.—You earned enough from the grant to pay for it all except that?—Except that.

10102. CHAIRMAN.—That is the cost over and above the grant?—Yes; the actual cost to the rates has been about 5½*d*. for each pupil taught during the year.

10103. Has this teaching that has been given in the Board schools, as far as you know, led in any case to pupils on leaving school taking up cookery as their business in life?—No; the aim of the instruction in cookery has been as far as possible to just fit the girls to do cooking when they leave school—to do it at home, but not to take up cooking as a profession.

10104. If they were going to take up cookery as their business they would require further training in the kitchen under an experienced cook?—Undoubtedly.

10105. Still this training would be of use to them, having given them some previous knowledge of it?—Oh, yes.

10106. Although, I suppose, they would not learn all the details of scullery work here?—No.

10107. I don't think you attempt to deal with fowls; you don't pluck them or clean them?—No. In laundry work during the year 523 pupils were taught, and 495 of those pupils earned the grant, and the net cost to the rates of the teaching of laundry work was £34 18*s*. 0*d*. In woodwork over 1,100 pupils were taught; 847 were presented for examination, and the total cost of teaching to the rates after deducting the grant was £37 19*s*. 8*d*.

10108. On looking at your table for woodwork, I see that in the year 1892 the rates were burdened to the extent of £126 odd; in '92-'93 that was reduced to £90; and in '93-'94 there was apparently no burden on the rates?—No; a credit balance.

10109. Of nearly £12. In '94-'95 there was a burden of £41 11*s*. 0*d*. on the rates, and last year, as you state, £37 19*s*. 8*d*.?—I might explain this—that the heavy burden to the rates in the first year was involved by the initial expenses, and the fact that the school was opened for nine months only, and therefore only earned part of the year's grant from the Science and Art Department. In the following year we somewhat increased our accommodation for pupils, and again the expense of replacement was considerable—£27 9*s*. 3*d*. We still further increased the following year—in 1893-94—and had a credit balance. But I should like to point out that in those years there was no charge made on the woodworking school for rates, and the charge for fuel, repairs, etc., was very light. But from 1894 to 1896 the school has been charged its due proportion of rates for the accommodation provided. The whole of the rates paid for that school have been divided according to the area used, and a due proportion charged to the woodwork class, and also a due proportion of the cleaning, lighting, fuel, and repairs.

10110. At first you got the accommodation as it were for nothing?—Yes.

10111. And afterwards they thought it right to apportion it?—Yes; and I give the chief heads of the total in each case; also the original cost of fittings or of additions. The original cost of fitting up the school workshop was £71 12*s*. 10*d*. The additions made since then have involved an expenditure of £76 5*s*. 5*d*.

10112. Professor FITZGERALD.—That is including the buildings?—Yes.

10113. Captain SHAW.—How much does that accommodate at one time?—I can take eighty pupils

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at one time. Our laundry school building cost £380; its fittings cost £18, and in the cookery school the original cost of the fittings was £55. But we had to add to that, and we have spent on fitting the ordinary school class rooms £25 additional; so the cost of fittings has been £80.

10114. Is it £25 for two schools?—We spent £5 each in providing appliances in five schools, so that the teacher should go to the school.

10115. CHAIRMAN.—And the £5 provided all the appliances we saw in one of the schools?—Yes; in building the room we built in a firegrate and sink, and that is counted as part of the expense of building.

10116. Mr. STRUTHERS.—The stove is included as part of the building, and the £5 only means the table?—Table, dishes, and pans.

10117. CHAIRMAN.—What improvements or developments have been suggested by experience?—We are not at all satisfied with the general effect of the cookery lessons, and for some two or three months past we have been trying to devise a scheme of work for our cookery school that would be more educational, that would continue further the object teaching of the schools, and would not have any deleterious effect on the work of the schools. We find our method of dictating recipes to the pupils and giving oral teaching is really undoing some of the work of the school. The teacher has not time to correct errors in spelling, errors in composition, bad handwriting, incorrect modes of expression, and we consider that unless that is done instead of assisting the other work of the school it is to a certain extent hindering it. We consider in cookery classes that the other work of the school should be assisted. We are doing it in our laundry school with very good effect, and we think we ought to try and do it in the cookery school, and that will be our next development—to systematise the work of the cookery school so as to make our cookery teaching more objective.

10118. In the cookery school, teachers of cookery are special teachers are they not?—Yes.

10119. Do you propose that those special teachers should correct the notes and exercises of the children as regards composition and spelling?—If they give notes they ought to correct the exercises. But we are considering this, that the time of the teacher of cookery when demonstrating is so taken up with the demonstration and the number of dishes she is preparing, that she has not time to correct these notes, and we think that if a printed summary was handed to each girl it would be better that the girl should not take notes but if necessary should copy that printed summary and present a neatly written exercise to the teacher.

10120. Do the girls now write out of their own heads a description of what they are doing?—No; they take down the recipes from dictation.

10121. Their work then is not original work?—No. Occasionally they are asked to write out answers to certain questions on the domestic principles that have been described to them; but when so written out it is very evident that they have not thoroughly grasped the ideas given and cannot spell the words that have been employed by the teachers. In wood-working we have been considerably affected by the fact that the Science and Art Department or the local inspector insisted on setting certain carpentry tests at examinations, and we think it would be better that the boys should make things, not parts of things; it would have a better effect on them. We have been trying to perform carpentry exercises and just before the examinations to have similar examination tests. It may be interesting to refer to the cost of the wood-working school, to point out the effect of that. In our first year our expenses for books, timber, etc., was heavy—£42 9*s.* 10*d.*, but that was the initial cost of supplying a school with timber and books and with other things. The following year it dropped to £29 12*s.* 10*d.*, although more pupils were instructed, and instructed for a longer time; next year to £21 10*s.* 0*d.* Then there is a sudden jump out of all proportion to the increase in the number of pupils, and that was largely due to the fact that we found that if we were to fully meet the wishes of the Department we should have to give the carpentry exercises and then there was a considerable jump in the expenses.

10122. Captain SHAW.—There was a considerable jump in the grant too—from £163 to £235?—Yes, but the grant does not double while the cost of timber and other things more than doubled. We found when we were working, making the complete things, that more operations could be performed on the same amount of timber. It would cover a greater time; hence the increased cost when we do these abstract exercises.

10123. CHAIRMAN.—Do you always now complete an article in the case of every boy, or is it only certain articles?—We intersperse them, taking abstract exercises and completed articles alternately. But if we had not this feeling, that on the examination day these abstract tests would be set to us, we should make the completed article and name the exercises contained in the article we were making.

10124. Does it cost more to make a completed article than to make two incomplete articles?—No; it costs less to make a completed article than to perform a number of abstract exercises.

10125. And does it take less wood?—Yes, practically, it contains less wood, for there can be more operations performed on the wood in a completed article.

10126. Why does it cost more—a boy could make one whole box in the time in which he could make two half boxes, could he not?—Yes; but in performing an exercise in dovetailing he performs his exercise on two short pieces of wood that are generally given to him planed. Then he passes on to another abstract exercise; we find he is not so careful; he has to be under constant supervision in performing the abstract exercises, and he gets through a great deal more timber with the abstract exercises. The completed article is more economical.

10127. I thought you said that the Inspector insisted upon completed articles, and that therefore you used more timber?—No; on abstract exercises.

10128. You are obliged to do abstract exercises to a greater extent than you otherwise would?—Yes, that is so. Then I should like, for the boys who have passed through the standards, to gradually develop some metal work. I think when a boy has gone through a three year's course in wood-work it would be a nice change for him to take up metal. He has acquired considerable facility in the use of tools, and I should like combined wood and metal work in the organized science school. It is a more refractory material, and many of the boys going through our schools will have to go to metal working, and I think it would be desirable to give them some training in metal work, but we have not been able to do that yet.

10129, What has prevented you?—To some extent a lack of premises in which to carry on the work, and a lack of what we consider a satisfactory course of lessons.

10130. If you were to introduce metal work here, would you have space in the higher grade school to put up a metal shop?—We should have to build a special building in another place; we have not the land and we have not the premises.

10131. What would that cost, have you formed any idea?—We should have to spend at least what we spent on the laundry, that is from £300 to £400.

10132. Have you any suggestion with regard to the laundry as regards improvements?—No; we are extremely well satisfied with our laundry work. We think it extremely practical, and the parents of the pupils attending the laundry, I think, value the teaching very much.

10133. Could you suggest any improvements in the course of lessons for the senior boys who have passed through the standards?—I think the science teaching might to some extent be made more practical. I think in the work in the laboratory more might be done for the practical teaching of science, that is, the practical lesson should precede in every case the theoretical lesson, and the boys should endeavour to deduce for themselves some of the laws of science.

10134. Do boys here make experiments for themselves?—They do, but not in many cases; these experiments follow the theoretical lesson.

10135. With regard to the difficulties which are inherent in the organisation of such work, can you give us any suggestions for overcoming them?—The chief difficulty we have felt in Barrow has been the provision of suitable teachers. We find the teachers come from the training colleges with no knowledge whatever of manual occupations. The training colleges leave manual occupations severely alone, and teachers coming to us, and being placed in charge of a class, are unable to take up the work of that class in manual occupations. In wood work we have got over that by making it a condition when the teacher is engaged that he shall attend a teachers' wood-working class. We have a weekly class for the instruction of teachers, and they must attend that class until they have attained such skill in the use of tools, and the principles of the course taken in the school, that they can carry on the work in their own class. But we cannot do that very well with the occupations for the lower standards, and it usually devolves upon the head teacher of the school to spend time developing that skill in the teacher which ought to have been gained in the training colleges.

10136. Have you manual instruction given in many schools in Barrow?—Wood-working is given to all boys in standards 5, 6, and 7.

10137. Do they come to a centre?—They come to a centre.

10138. How many teachers are required in the centre?—A teacher for each twenty.

10139. Are they drawn from the teachers who have passed through the teachers' classes?—Yes; we have two permanent teachers at the centre, and if sixty boys came from a school, one assistant teacher would come with that sixty. If eighty came, two teachers must come, and these teachers will have been through the evening classes provided by the Board, and trained in the use of tools.

10140. Is the head teacher at Duke Street permanently attached to that school?—Yes.

10141. And does nothing else?—And does nothing else.

10142. He supervises the assistant teachers who come from the other schools and sees that they are teaching properly?—Yes; he himself is a certificated teacher, fully trained as a teacher before he took up wood-work.

10143. What do you say about the equipment of classes for the various matters you have been giving us information about?—There are considerable difficulties in getting hold of the right material and the right appliances for advanced kindergarten. We have found in many schools that the teacher is not able to judge how to correctly use the material, especially in the teaching of colour, so that you have practically to supervise the selecting of tints in colour for the teachers, and sometimes to supervise too the provision of proper tools. We in Barrow have tried to be as economical as we could in this matter. I was allowed by the Board to spend £150 on the introduction of advanced kindergarten into the schools, and I managed to do it on that, but still our appliances are not what I would like if we were to do the best work.

10144. How many schools are there here?—We have twenty-three school departments, and the total number of schools is eleven. We accommodate 8,537 pupils. We have 7,534 on the roll, and the amount granted to me for the introduction of the advanced kindergarten was £150.

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10145. What do you say about teaching the use of tools to boys?—I think there must in all cases where the use of tools are taught to boys be special provision made. There is the great danger, if you use the ordinary tools on a school desk as has been tried in some districts, that you will ruin your furniture, and one condition of the grant in English schools is that all this instruction must be given in a specially fitted work-shop. I find abroad that they manage to give this instruction even in the ordinary school-room, as far as it is given, and I believe they do so in Scotland in some cases.

10146. Mr. Struthers.—Not in the towns. There is no regulation I know of which prohibits its teaching in the ordinary schools.

Witness.—I think where premises are sufficiently large it would have no injurious effect on the ordinary school work if benches could be used in those premises either at the close of school or after school hours.

10147. Chairman.—The English objection would be that it would be necessary that the boys should sweep out the litter after them?—That regulation we apply in our own ordinary workshop; the boy must clean his bench and sweep away all litter from under his bench. In cookery classes I consider it would be very desirable to always take the teacher to the school rather than bring the children away from their schools to a centre. It is an economy of time for the ordinary school work. The children are not exposed to all sorts of weather, and you get better co-operation with the head teachers of the schools. They seem to take greater interest in the work when they know that it is on their own premises, given at a certain fixed time, and that the girls are not sent away for half an hour before the lesson would usually commence to trail through the streets.

10148. That would involve a great many more cookery classes than you have at present. I think you said besides the centre you have five schools in which you provide appliances?—Yes, but you must remember that the orignal cost of providing a central school for cookery is heavy.

10149. But suppose you never took the children away from their own school, you would have to provide appliances for every school in Barrow?—Yes.

10150. How many extra schools would you at once have to provide appliances for?—Only three.

10151. Do you mean you have only eight schools where girls are taught in Barrow?—There are eleven district school blocks; five we have already fitted up. We have a central school that would serve for the school there. That would be six. At Roa Island we have cookery ranges in the school if we wanted to use them. In Walney Island we do not teach cookery, and thus there would be but three more schools that would need to be provided for.

10152. What improvements do you suggest with regard to laundry classes?—I don't think that as our laundry is as present constructed we could suggest much improvement. But we are likely to be affected by a Government regulation which says that girls shall only receive laundry instruction for a certain number of hours per week. I think that will materially injure the work; we shall not get such interested attention in the work and not get such results for the work.

10153. At present I think you have each class continuously at work for a week?—Yes.

10154. How often in the year does that happen?—Only once. They come for a full week's instruction, bring their clothing, wash it thoroughly, and take it home dried and aired, and ready to put on.

10155. Do you think the result of that teaching is as good as, or better, than spreading it over a more lengthened period?—Our method is decidedly better. We have tried both. We originally began by spreading the instruction over a number of weeks in the year. I drew up a table working out the attendance of each

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girl, so that she came on a certain date, and after a certain number of weeks came for a second lesson, and so on, and we found the girls came without the clothing, did not pay the same attention to their work, and attended irregularly. When we tried as an experiment our present method, we found the attendance very much better, and it is now very seldom a girl misses coming if she once begins her week's attendance. She takes a great interest in her work, because she is washing things that come from home, and her parents take an interest in it, because they can judge of the character of the work done.

10156. Does she keep up her work at home afterwards?—We find that is often done.

10157. In the case of a girl who does not keep it up at home, and comes back next year, do you find she has forgotten what she learned before?—Very little of it.

10158. What is the minimum age at which a girl goes into the laundry class?—When she enters the fifth standard, that is, about eleven years of age.

10159. Assuming she stays into the seventh standard, she has a three year's course?—Yes.

10160. Rev. Dr. Wilson.—You say that you try to connect all this work with the ordinary school work?—Yes.

10161. How many hours in the week do you take from school work for this manual instruction?—For the manual instruction (wood-work) for boys, two hours a week; for laundry and cookery it amounts to about the same thing. In the lower standards it varies—generally about an hour a week. But I consider that many of these occupations could be taken in connection with the ordinary school teaching; for instance, when teaching a boy the metric system. We know that if he has been taught to measure length, has handled his rule and gets to measure surfaces, that in the same way he could get a knowledge of cubical measurements, and could deduce his measures of capacity from that. All this could be well taught by manual occupations and would very likely more firmly impress itself on the minds of the pupils than teaching from a blackboard, and so I would connect as far as possible the ordinary work with the occupations. The teaching of fractions could be well done by paper folding and cutting.

10162. Was it in 1892 you commenced this?—Yes; cookery before that time. But I have begun all the balance sheets from the same point. We opened our workshop and laundry about '92.

10163. Are those operations increasing in popularity with the children and their parents from year to year?—Undoubtedly. I should like to mention this fact, that the School Board Election was last year, and I noticed that on the election addresses of the Trades Council Candidates there were statements that they would recommend when they came to the Board, an extension of technical training, so evidently it has impressed itself on the minds of the Trades Unionists.

10164. Would it not be a great improvement if the training colleges would send teachers prepared to teach these occupations?—Undoubtedly. I think that ought to form part of the training.

10165. Has any movement been made in England to obtain that result?—I am afraid not. I have suggested it to Mr. Rooper, and several other inspectors; they see the necessity of it, but they feel there is something in the way.

10166. You think cookery as at present taught with you interferes to some extent with the literary instruction?—I am afraid so.

10167. Do you think it would be possible to have cookery so arranged as not to interfere with the literary instruction?—I think so.

10168. Mr. Redington.—How does it interfere with the literary instruction?—I am afraid by the dictating of recipes to the girls, and the incorrect keeping of note-books which must ensue, because the teacher has not time to correct them.

10169. Mr. Struthers.—That is not due to the teaching of cookery, but to the teaching of cookery in a particular way?—Yes; it is a matter of detail.

10170. Professor Fitzgerald.—Is there any other extension of the art education besides the chalk and coloured paper work you are doing, in addition to freehand?—There is modelling in clay in the lower standards.

10171. You have not extended clay modelling to the fifth and sixth standards?—Not yet.

10172. Do you think that increased art education would be desirable?—I think so; and this statement has been made to me by one of the masters, in fact, by the master of the Roose School—that were there no annual examination in drawing, if the work were tested by inspection, he would teach his drawing through the occupations, and he believes he would get better results, or quite as good results.

10173. How would he teach freehand drawing by occupations?—He would combine free hand drawing with his teaching of colour largely, and of course in the same way he would develop the same sense by modelling.

10174. I see that there are a good number of curved surfaces used in the woodwork?—Yes.

10175. Is it not much easier to teach curved surface work by means of clay modelling?—No; of course you find that the material is more refractory in wood, and has an advantage on the pupil in that way. There is more resource required to develop a curved surface in wood than in clay.

10176. Then ought they not begin with clay?—We begin with clay in the lower standards.

10177. You think that sufficient training?—Yes.

10178. To what extent have you got object lessons?—Object lessons are taken throughout standards 1, 2, and 3. They are now compulsory under the regulations of the Education Department.

10179. Do you work elementary science at all?—To a very slight extent. At one time we tried it in the form of Natural History, but it is dropping out. They have a course of Natural History at Walney school taking the place of English.

10180. What sort of object lessons were you working?—We have at present the same scheme that is in use in London—Murche's scheme.

10181. Not with any special reference to elementary science?—No.

10182. Don't you think it would be possible to work a system of object lessons connected with elementary science?—I do. I think it could be well arranged to lead up to an elementary science course in the upper standards. But you would have to have a teacher who was full of resource.

10183. Mr. Struthers.—Do you teach science in the upper standards in any school except Walney Island?—No.

10184. Professor Fitzgerald.—Is it because you don't think it has an educational value that you don't teach it, or because there is a difficulty in getting the teachers?—I consider science has an educational value; but before a pupil attains a certain age, a certain stage of physical and mental development, I think he cannot reason correctly. It requires a great deal of training before he can reason scientifically.

10185. Is not that the training that you want to give them?—Undoubtedly.

10186. You think cookery could be arranged so as to be of an educational value?—Undoubtedly.

10187. Chairman.—Do they teach cookery in the training colleges?—In some training colleges, but not so as to obtain diplomas, which the Education Department would, I think, consider necessary before the teacher took charge of a school.

10188. Professor Fitzgerald.—Would it not be better to reduce the amount you are using, and make it more educational; if they did not do so very much could they not pay more attention to the amount they learned, and the exercises they wrote about it?—That is our intention; that is part of our scheme we are now trying to develop.

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10189. You think it is very important that in the woodwork the children should feel an interest in the exercises they perform?—Yes, very important.

10190. And for that end you prefer having models?—Yes, we prefer making some completed article.

10191. Your experience is that the grants both from the Education Department for laundry and cookery, and from the Science and Art Department for manual instruction, fairly cover the cost of the work?—Yes

10192. As you carry it out here, the grant for cookery is 4*s.*?—4*s.* for forty hours' instruction.

10193. And for laundry work?—2*s.* for twenty hours.

10194. Do you know what you get for the boys on an average from the Science and Art Department—I suppose 7*s.*?—Yes; all our schools were classed "excellent," which, under the old system, meant 7*s.*, and it practically means 7*s.* yet.

10195. And that with about 10 per cent. which you get from the rates covers expenses?—Yes

10196. Then as regards the salaries of the assistant teachers in woodwork, they are all class teachers in the schools?—With one exception. We have one permanent assistant, so that we may have a permanent teacher in the room.

10197. Do they get any extra pay for woodwork instruction?—No; it is considered part of their class work.

10198. I should like to clear up the question of cost, which you say has enormously increased—I see under your scheme if the Department did not examine you, you would execute ten exercises in the first year?—Yes.

10199. As it is you execute ten exercises in the first year?—Yes, but you must, before the annual examination, spend a considerable time in performing examination tests. That is how the timber disappears.

10200. Do you mean to say that your training is so deficient after these tests that you waste a lot of wood at the end in preparing for the examination?—I should not like to say that. But you know that a boy preparing for an examination tries to become extremely accurate, and there is only a limited time in which to do the exercise, and the pupil must be so trained that he will do that exercise in a limited time as nearly perfect as possible, so he repeats his exercise again and again.

10201. In the Swedish Sloyd some of the exercises take a considerable time—ten hours?—Yes, some of the more advanced exercises.

10202. I see you don't put in the first exercise—the pointer—how long is supposed to be devoted to that?—I found from examination when we took the pure Swedish Sloyd here that a boy might do it in very little more than half the time that it took me at Naäs.

10203. But then he didn't make it satisfactorily?—Yes, we tested it. At the end of a year's course we gave a boy a round pointer to do, who was not under examination, and he completed his round pointer satisfactorily during the time that a boy was performing one of the joint exercises. We judge children largely, I think, by ourselves, and I find children can handle the tools with greater facility than we can. With such a thing as a knife they get quicker through their work than we do. If you use a tool like a knife which is less mechanical than many others a good deal will depend upon the individuality of the child whether he will produce a good model or not.

10204. Is it not more difficult to train a child to make a good model with a knife than it is with ordinary carpenters' tools?—No, we have not found that. My great objection to the use of the knife is that in some Swedish models you continue to use the knife too long, and it is a great strain. I know it was upon me when working with the knife. It tires your hand.

10205. Don't your muscles get stronger by practice?—Undoubtedly; but if you continue to use it beyond half an hour a boy begins to suffer pain, and he should put his knife down and do something else.

10206. Captain SHAW.—Do you not find that continuing for a long time at one exercise when a boy is not successful it rather takes away from his interest?—Yes; but the teacher must use his discretion. If the teacher is a good teacher he will soon find if a boy has had enough of a model and he will let him go to something else even if he has to bring him back again.

10207. Mr. STRUTHERS.—You distinguish between continuing long at an exercise and long at a model?—Undoubtedly; and the Swedish system is that you should change from exercise to exercise even performed upon the same model.

10208. Captain SHAW.—Have you visited France?—No, but I have gone through all the French exercises.

10209. In France the exercises are entirely with ordinary carpenters' tools?—Entirely. They are practically what the Americans call the Russian system as elaborated at the Moscow school.

10210. At Leipzig they are nearly all completed articles?—No; they ring the changes in the abstract exercises to develop the power of using the tool and then the completed article. Dr. Goetze, the director of the Leipzig School, was trained at Naäs, and tried to adapt a series of models to the needs of Germany. The Danish system is the same, and the Americans have largely gone in for the same system. They have what they consider two broad systems, what they call the Naäs and the Russian system, and the report of the Commissioner of Education on the exhibits at the Columbian Exposition in dealing with these in detail gives his conclusions something like this—"Wisely in Boston and other places they have allowed two or three systems to run concurrently for the sake of experiment," and he says as showing the determination of the State to solve by long continued experiment the problem of manual training for lower grade schools, "I am inclined to the opinion that the course of Mr. Larrson, either in its present form or some modified form, is likely to become the standard for the schools of the lower grade. Whether the principles of Sloyd can be properly carried to schools of a higher grade is open to question." In America the result of the experiment is that the making of completed things, not the performance of abstract exercises which they call the Russian form, is considered to be, undoubtedly, the proper form of woodwork for children of the age of those attending our elementary schools.

10211. CHAIRMAN.—The completing of things?—Yes.

10212. And they call the Russian system the making of only parts of things?—Yes. The Russian system first attracted attention in the United States at the time of the Philadelphia Exposition. The Moscow school sent a series of exhibits, and they were at once thought to be just the thing for American trade schools, and they were adopted at Chicago, New York, St Louis, and other centres But the great defect of the introduction of the Russian system was stated to be that "what is now wanted is that there should be a missing link supplied between the kindergarten and the trade school," so undoubtedly they have always regarded the abstract exercises as the work of the trade school, not of the primary school.

10213. Captain SHAW.—The regulations of the Department allow you to take eight hours a week as the maximum in laundry work?—Yes.

10214. Would not that correspond with four mornings in each week?—Yes, but we should have a great difficulty in getting the clothes just in the proper condition for the children to go on with.

10215. You don't think it is possible by only taking them half a day for four consecutive days to get through the week's washing?—Our great difficulty would be to keep the clothing in that condition to carry on the work effectively.

10216. The system in cookery is to have five or six dishes each day?—Yes; that is a mistake, and we

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found it so, and are trying to remedy it. We are trying to arrange our work so that there should be a definite principle involved in each lesson, and a few dishes to illustrate that principle, so as to make it as much an object lesson and educational training as possible.

10217. Under the present system one child is roasting meat and another doing ground rice?—Yes.

10218. And the child who does ground rice will never practically roast the meat?—The aim has heretofore been to cook a dinner, not to have some educational principle involved in the lesson. Now, we think there ought to be an educational principle involved in the lesson; that the lesson should deal with educational principles.

10219. CHAIRMAN.—Would you suggest that one day they should roast meat and another day make a rice pudding?—Oh, yes. I would have one lesson dealing specially with the roasting of meat. They should consider that as their primary lesson. They could also roast potatoes. When baking meat they they could also bake potatoes, but each article cooked should still involve the same principle of roasting, baking, boiling, or stewing, whatever the lesson is on.

10220. Mr. STRUTHERS.—That is your present course?—Yes; the amended course is not yet completed. I am completing it in conjunction with two ladies—one who is a member of the School Board, and the other was lately a member.

10221. Captain SHAW.—Don't you consider that a great deal of advantage has been derived from the fact that no definite syllabus has been laid down for these varied occupations or manual instruction, and that each place has to work out its own salvation?—I think so, decidedly, in varied occupations. If you notice in the scheme, I *suggest* I do not lay down any definite course of exercises, and as to not laying down a definite course of exercises, I quite agree with you for woodwork. In fact, I have been asking the Department that we should be given freedom.

10222. And you have it?—We have it given to us with one hand, and it is taken away from us with the other.

10223. Is it not rather against the training of teachers if you train them all without laying down any course?—Not if you give the educational principles hand in hand with it.

10224. If you train them to understand the system in the Training Colleges, is not it more popular with them in the school?—Not necessarily. We don't find that to be the case. We have two or three teachers who have been trained in the City and Guilds' course. They have come here, and have become enthusiastic in Sloyd work.

10225. This is because they had Sloyd here to influence them probably, but if they had no deciding influence after leaving the Training Colleges?—That I can't say. Their first lessons have been in abstract exercises and afterwards in Sloyd, and they became convinced that Sloyd is the better training for them.

10226. Mr. STRUTHERS.—Must not the teachers in woodwork be trained in some fashion or other?—Yes.

10227. And any course of exercises he goes through does not prevent him developing a course of his own afterwards?—No.

10228. You find by experience they generally develop a course of their own?—Yes; take our own teacher who is strongly imbued with Sloyd principles. He is developing a course of his own.

10229. Professor FITZGERALD.—Have not most of the teachers been trained at Nääs?—Only one here.

10230. But have not a large number in England been trained at Nääs?—Not so many as in the City and Guilds' course.

10231. Have any of them adopted the Nääs course or the City and Guilds' course in its entirety? Have they not all actually, as a matter of fact, modified the course in which they were trained?—They have.

10232. Mr. STRUTHERS.—So that if there was a definite course of instruction in the Training Colleges we may expect the teachers will develop their own course?—Undoubtedly.

10233. The systems of woodworking you know may be reduced to two primary types—the French or Moscow school, and the Swedish Sloyd as taught at Naas?—Yes.

10234. What the French or Moscow school aim at is to develop technical skill?—Technical skill.

10235. And the aim of Swedish Sloyd is to educate the pupil?—Yes.

10236. Specially to develop his individuality?—Yes.

10237. So that there can be no objection to the using of tools the effects of which will depend upon the individuality of the pupil, such as the knife?—None whatever.

10238. You don't use the knife so much as they do in Sloyd?—No.

10239. Because you find certain difficulties in practice?—Yes.

10240. Is the use of the knife in Sloyd a very great obstacle to its introduction into England?—Undoubtedly. I was discussing that matter last night with a tradesman in the town as to what he would do under certain conditions. He said, "Certainly, if I were alone I should use my penknife, but if I used it in the work shop I should be laughed at."

10241. You find, as a matter of fact, that with many people, whom you would expect to be better acquainted with the different forms of manual instruction, there is a very prevalent misconception that Sloyd consists in making things with a penknife?—Yes.

10242. Even such things as a pen-tray are supposed by people who are believed to be acquainted with manual instruction to be made with a penknife?—Yes; or who should be acquainted with manual instruction.

10243. If you were left free to work out your own course you would not introduce any separate or preparatory exercises?—No, but we would not bind ourselves. We would, in the case of a boy who was going wrong, demonstrate the correct method, let him try it, and then go back to the model. But still in our main lines we would make things and not parts of things. Now we have abstract exercises.

10244. You say that the working out of your system has been rather interfered with or hampered by the test applied by the inspector?—Yes.

10245. Does not that apply to other branches of instruction—take needlework for instance?—Oh, yes, largely.

10246. Is it not a common complaint that the test that has been prescribed by the Code to be done by the children at examinations prevent the teachers teaching needlework on garments to the extent that they would?—Yes.

10247. As a matter of fact the teacher is occupied many weeks before the examination in practising the separate stitches on separate bits of clothing?—Yes; exactly as teachers spend time practising on bits of wood, exercises for the examination in manual work.

10248. There is a pretty general feeling that the time so spent on these little exercises is time lost?—Yes.

10249. Professor FITZGERALD.—It has very little educational value?—Very little.

10250. Mere manual dexterity has not much educational value?—No. You find that they apply methods to the small bits of material in needlework that they would not apply to garments.

10251. Mr. STRUTHERS.—They practice the thing over and over again in order to become expert at these particular exercises?—Yes, to perform particular exercises within the smallest possible time in which they could be performed accurately.

10252. Professor FITZGERALD.—That would be more important to apprentices?—Yes, or a trade school.

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10253. Mr. STRUTHERS.—Supposing you had to suggest a method by which the quality of your instruction was to be tested, how would you propose to have it inspected—we will take woodwork for instance?—I should like the inspector to come into the school and see exactly what the boy is doing, and see if he handles his tools correctly. We have here in Barrow—and we have to thank Captain Shaw very much for some hints he gave us some years ago—we have here in Barrow really made great changes in our woodwork, because Captain Shaw put us on the right lines, viz., to aim at the correct handling of tools. The inspector, if he knows his work, can see that. Captain Shaw saw it at once.

10254. Then you would prefer inspection to individual examination?—Yes.

10255. And in other subjects you would have inspection totally substituted for individual examination?—Yes.

10256. You would not merely propose that woodwork should be examined in the same way?—Yes; I would have drawing examined in the same way.

10257. As to needlework, what is the test at present under the new regulations?—The inspector comes in and sees what stitches the children have done, and instructs the teacher to give out bits of calico or flannel for the working of exercises. The teachers must continually practise these exercises, and also get the garments made.

10258. So they are worse off than before?—Yes; but if the garment were going on throughout the year, the inspector would see the girls at work on the garment, and he would be able to form a sound opinion.

10259. And it would be possible, of course, to ask the pupils to continue to do a little more work on the garment on which they were already at work?—Yes.

10260. Or repeat the model they have already done in woodwork?—Yes.

10261. Professor FITZGERALD.—Would not it be possible for teachers to teach one girl top-sewing, another running, and a third girl hemming, and not teach all the girls these stitches, but to have hemming done by one set of girls, top-sewing by another set of girls, so that each one would be tremendously proficient?—That would not remain long. The inspector would soon see through it.

10262. Mr. STRUTHERS.—An inspector of ordinary observation would detect it?—Yes.

10263. You said you could teach the metric system by these occupations?—Yes.

10264. Is the metric system prescribed in the English Code?—Yes, the elements. I mean to infer that I would teach the metric system more largely by it.

10265. You speak in your system of the description by the children of mental images of prisms, &c.?—Yes. I mean you would ask a child to describe in his own words the form he had in his mind and thus get practice in oral composition. You thus apply your form lesson to the general education of the child.

10266. It would form a rather restricted theme for conversation?—No. You could apply it to objects in nature like the solid, or that seemed to be described from thes olid, and to descriptions of "why like" and "why unlike."

10267. You say that form of instruction for three or four years has in view the syllabus of the Science and Art Department. Why syllabus?—The drawing syllabus, not the alternative scheme, though I should like to introduce the alternative scheme. We have practically carried it out. I consider the use of the brush ought to be taught throughout

10268. What do you consider the circumstances in the way of your introducing the alternative scheme?—I think the want of an intelligent grasp of the value of brushwork by the teacher, and probably the desire on the part of some teachers to keep within the beaten track.

10269. You have in view the introduction of brushwork?—Oh, yes.

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10270. And are making preparations?—Yes.

10271. By training teachers?—We have not trained teachers much, but I have elaborated a series of exercises that I think I shall bring before them. I usually lend my notes on drawing and similar work to the teachers, and see what they think about them, before suggesting any development

10272. You find the system of taking girls for a week continuously in laundry very successful?—Very successful.

10273. Might not the same system be applied to the teaching of cookery?—There is not the same necessity in cookery. You must complete what you are doing within a certain time.

10274. There is some necessity, and ought it not be done?—Yes, it might be done; but I am afraid in cookery it would become monotonous.

10275. You think it more monotonous than washing?—Oh, yes; because in laundry you very your operations.

10276. And you vary your things?—Yes; you vary your principles. I have no knowledge by experience, but I would not like to say it would be successful unless I had experimented.

10277. Suppose you had a system of teaching cookery in rural schools—itinerant teachers—would it not be much better to take the girls in one school continuously before going to another school?—Yes; if the schools were wide apart it would be so.

10278. And so taking cookery continuously, would it not be a convenient system in rural schools?—It would; but I am inclined to believe in rural schools—a course in domestic economy, as taken in Brussels and other towns in Belgium, would be better. A course of domestic economy, combining cookery, laundry work, and the principles of hygiene.

10279. Have you visited these schools?—I have not; but I have directed the attention of our laundry teacher to these schools. I also got Mr. Marsh to spend his holidays in Leipsic and Amsterdam.

10280. What do you think stands in the way of training teachers in training colleges in manual work?—I think the lack of sympathy on the part of the training college authorities to a new departure in education, and the lack of sympathy in some senior inspectors.

10281. You don't think the amount of other work the students have to undertake would prevent them taking it up?—I do not; because we find in other schools the change of occupation is a rest for a certain set of faculties, and that they can be more successfully used afterwards.

10282. Monsignor MOLLOY.—The introduction of manual occupation in all the schools has been progressive?—Yes.

10283. And to a certain extent experimental—you felt your wey as you were going on?—Yes.

10284. Over what period of time has the experiment extended?—For the past four years in the case of advanced kindergarten. In infant schools we experimented with kindergarten for six years before we laid down a definite scheme. We have been teaching woodwork for four years, laundry work for four years, and cookery for over ten years.

10285. I think you said the system is capable of still further development?—Yes.

10286. But is it sufficiently established to enable you to form an opinion as to the educational value of these manual occupations?—Oh, yes, I think so.

10287. And that opinion is decidedly in favour of continuing it?—Yes, decidedly.

10288. Am I right in supposing that your School Board are satisfied that the money expended in the development of manual occupations has been fully repaid by the value of the education given?—Oh, yes.

10289. Is there any tendency on the part of any educational authorities connected with your schools to abandon these occupations, and go back to the old system of the three R's, with geography and history?—No.

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10290. Then we may conclude generally that experience has proved the advantages of the new development?—Undoubtedly.

10291. Would you kindly state in a few words what these advantages are?—We find, especially in our smaller schools, that as a result of the time given to these occupations, the progress made in the ordinary school work, is more rapid. One of Her Majesty's inspectors visited Roose school last week, and at the end of his report stated that the school, in some classes, had practically completed its year's course in a little over five months, and he wanted to know what was going to be done for the remainder of the year Now the teaching in that school before the introduction of manual work was not entirely successful. Probably you would judge of the present success of the school by the last report on it.

10292. The literary education, so far from suffering by the introduction of these subjects, has gained?—Has gained. This is the report on that school—"The children appear to be interested in their work, and answered brightly and intelligently in the oral examination. The general progress is very satisfactory." This relates only to literary work.

10293. Are there other advantages that come from the teaching of these manual occupations?—I think we are securing a more regular attendance on the days when manual occupations are taken. The children are more interested in their work.

10294. And they acquire skill and dexterity of hand and eye?—Undoubtedly.

10295. And are better fitted for their work in life?—Yes, they are more keenly observant.

10296. Can you state approximately what has been the rise in the rates that has resulted from the introduction of these new subjects—the rise in the rates that can be ascribed directly to the introduction of the new subjects?—I don't think you can ascribe any rise in the rates to the introduction of the new subjects.

10297. They have been introduced without any additional cost?—Yes; but we have reaped an additional grant.

10298 The grant that you obtained by the introduction of these additional subjects has practically covered the expense of introducing them?—Yes; the net cost to the rates for this and last year was £99 17*s.* 4*d.*, and a penny rate here produced last year £780.

10299. Then any additional cost that they have involved is paid out of the Imperial Exchequer and not out of the local rates?—That practically is the case.

10300. Professor FITZGERALD.—Do you think the increased efficiency in the other subjects is worth that £100?—I think so.

10301. Monsignor MOLLOY.—Now, as regards the parents of the children who come to your schools, are they pleased with the new development?—Oh, yes.

10302. Were they in favour of it at first?—No; I specially mention laundry work. In one school alone, when we had opened our laundry, we had a request from forty-four parents that their children should not attend the laundry. During the past year we have not had a single request for permission to keep away from laundry work, and in the same way with the other subjects.

10303. Then it is true to say generally that both the educational authorities and the parents of the children are now pleased with the new development of manual occupations?—Yes.

10304. And they would not wish to abandon these occupations and go back to the old system?—I believe so.

10305. And further, that some prejudice which at first existed against it, has disappeared with experience?—Certainly.

10306. I think you said that it is desirable that these manual occupations should be taught in Training Colleges?—Yes.

10307. Do you think any intelligent teacher properly trained could teach these manual occupations in addition to teaching literary subjects?—Oh, yes, we find that to be the case. All our occupations are taught by people who have been teachers.

10308. We saw yesterday, in Roa Island school, a lady who teaches these subjects for girls?—Yes.

10309. And also kindergarten for boys?—Yes.

10310. Do you think that in large towns, where centres could be established, it would be preferable to have special teachers for such subjects as woodwork, cookery, and laundry?—It would no doubt be an economy, as we have found in woodwork, to have one centre under a trained successful teacher.

10311. Have you found a practical difficulty arising from the use of hard words for infants—words like sphere, hemisphere, triangular prism, ellipsoid?—There may be. "Ellipsoid" is not used in an infant school, and we find that a child, if you develop its intelligence, will know that sphere is a name you must use. There is no difficulty about that. The only names used in an infant school would be sphere, cube, cylinder, square prism, triangular prism, and are not things that to a good teacher would present any difficulty.

10312. At the worst, I suppose, if a child failed to grasp these words, it has at least learned the things and the qualities of the things?—Yes.

10313. And that is real knowledge even if it blunders over the names?—Yes.

10314. Professor FITZGERALD.—It is no more difficult to understand "sphere" than the term "adjective"?—No.

10315. Monsignor MOLLOY.—I should like you to give us your opinion as to whether modelling in clay assists very considerably in giving a knowledge of form?—Yes, undoubtedly.

10316. Do you consider that it supplements the value of object lessons?—Yes.

10317. I think it is adopted in most of your schools?—Yes.

10318. You see no reason from experience to abandon modelling in clay?—None whatever.

10319. Mr. REDINGTON.—When putting in the table in reference to the cost of woodwork, laundry work, and cookery, would you kindly add the details of the woodwork expenses, the year's grant, and the number who are taught?—I have not the figures for the back years—I can give them to you for '95-'96:—1,140 pupils were taught—of course now the grant is paid on the attendances made above a certain number; 847 of these pupils were present for examination. The grant we earn now is not estimated on the number who were actually present at the examination, but on the number of attendances made during the year.

10320. On how many pupils was the grant paid?—It would be paid on the attendances, not individual pupils, and not, as in the cookery and laundry work, where individual pupils who have completed the attendances are paid for.

10321. Captain SHAW.—Do you know how many failed to make the attendances out of the 1,140?—A very small proportion.

10322 Mr. REDINGTON.—1,140 pupils are stated to have been taught woodwork. How many of these went through the whole course?—That I could hardly say; 847 were there on the day of Examination, and would practically have completed the whole course.

10323. Is there any course of form study in the first year in the infant school?—No. The first year of definite form study is the second year the child is in the school.

10325. Is there an expansion of the study of form and colour in the second year?—Yes; the second year's form study is an expansion of form and colour in the second year. The third year's course of form study is the first standard, and it progresses to the fourth standard.

10326. In your paper you can give us the three stages of woodwork instruction under the organised science school?—Yes.

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18327. Are those stages for boys who have passed through the seven standards?—No. We get boys in the science school who have not been in the wood-working classes at all, who come from districts immediately around Barrow, who come in by train. They begin the first year's course, which corresponds to some extent with the year's work a boy would do if he were in the fifth standard. If a boy has gone through standard seven in a Barrow school he would probably be working at the third year's course in the organised science school. I believe an example of that was seen the other day—a boy who began from standard seven, and who was doing the third year's course in the science school.

10328. As regards the revised syllabus for cookery, will you kindly put it in as soon as you have it drawn up?—Yes.

10329. Is a diploma necessary before cookery can be taught?—Yes, or the teacher must be approved.

10330. Where do they get the diploma?—There are certain training schools at Manchester, Liverpool, Leeds, and Newcastle for the North of England

10331. And in order to get the diploma, how long must the teacher stay at the training school?—At least twelve months.

10332. Is this regulated by the School Board or the Department?—The Department.

10333. And no person can teach cookery unless they have been twelve months in a cookery school?—Unless they are specially approved. I may say that the Department has at present the whole position of the cookery teacher under consideration.

10334. I suppose it would be impossible for a teacher who has a school in the country to give it up for a year and go through a course of cookery?—That was a great difficulty, but it was got over at one time in Manchester by an evening course of training. We had a separate course of training at one time in Barrow, conducted a complete course of lessons, and had an examination for diplomas in Barrow, but then the Education Department declined to recognise it for the future.

10335. Of course the number of lessons so given would be very much fewer than they would be in a training college?—Yes. The teacher would have the opportunity, however, of revising the work and practical lessons in the interval.

10336. As a matter of fact, is cookery taught in many rural schools in this neighbourhood?—Not to any considerable extent. I believe it has been taught in one or two rural schools in Cumberland, but Miss Deane, the Inspectress of Cookery, told me that in some of these rural schools the work was not satisfactory.

10337. Cookery, of course, is taught in the ordinary school hours of the school?—Yes.

10338. And woodwork also?—Yes.

10339. In the laundry classes do the pupils bring the materials to be washed?—They bring their own garments, and there are certain school garments kept there if the pupils are without garments.

10340. When you introduced this manual work, and also advanced kindergarten, to what subjects was less time given?—That was left largely to the teacher. In some cases it was taken from the arithmetic. In one school the time was taken from arithmetic for the use of physical exercises and manual work, and the results obtained in arithmetic were better if anything than before.

10341. Did you wholly omit any subject?—None.

10342. What were the class subjects in your schools?—Up to last year English and geography in all standards for boys; English and needlework for girls: now a special course of object lessons together with geography in standards 1, 2, and 3, and a course of English and geography above that. In Roa Island school the subjects are, in the upper standards, geography and history. In Walney Island school, natural history and geography.

10343. Have they not also in the upper standards manual work?—Yes.

10344. Mr. Struthers.—Your position is that of *general* superintendent of the schools?—Yes.

10345. So you are not interested more in manual training than in other subjects, from your office at any rate?—No.

Miss A. Andrews, Laundry Instructress to the Barrow-in-Furness School Board, examined.

Miss A. Andrews.

10346. Chairman. — You are instructress of laundry work in connection with the Barrow School Board?—Yes, my lord.

10347. What do you consider the economical reasons for the organised teaching of laundry work?—For health and home comfort; it is also important in regard to the health of the individual.

10348. What is the educational importance of the course as practised in Barrow?—To supplement generally the educational training of the child.

10349. Will you develop that a little if you please?—Yes; the class and the sorts of materials washed, and the class and the sorts of materials used in the washing are first dealt with. It is shown that flannels and woollens are obtained from the animal kingdom, therefore they are animal fibres. Fine things, bedding, and table linen, and also coarse things are made of cotton and linen, and are derived from the vegetable kingdom. Then there is a great difference again in the materials employed in the washing, some belong to the animal, and some to the vegetable kingdom.

10350. That is what you call "object teaching"?—That is "object teaching."

10351. The object being to further develop the powers of observation of the children, and to train the children to appreciate the why and the wherefore?—Yes. I should supplement the really educational importance by the necessity of getting correct answers in sentences.

10352. You carefully supervise a lot of written work?—Very carefully.

10353. In writing, spelling, and composition?—Yes. I have some exercise books here (*producing them*). During their writing I did nothing else; I detected and marked or corrected the errors at once.

10354. In this particular book before me there appear to be very few errors indeed?—We have very few generally. I spell the hard words or those to which they are not accustomed. These are not really picked books, nor chosen from the rest. I had the books presented on the morning of your visit. They had not been in the school for above a month, and they have not been corrected or revised in any way.

10355. Going beyond the aim you mention of supplementing their general educational training, do you find it secures increased attention, and indirectly inculcates cleanliness, neatness, love of order, patience, perseverance, pleasure in bodily labour, and respect for it, and an appreciation of good sound materials and workmanship?—Yes; I find it so, because each girl is responsible for her work, and the fact that it is her own garment, and that a moment's carelessness with the iron may deprive her of that garment, maintains her interest. She may burn it if she is not careful and interested in what she is doing. Cleanliness is enforced by the knowledge, obtained from the lessons, that the average body exudes one and a half pints of sweat in a day—my hygienic teaching comes in here—then she feels obliged regularly to change her garments and regularly to wash her skin. Again, the making up of good sound materials and good workmanship, illustrates the necessity of garments being well cut and well stitched to fold well.

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10356. Does it also secure manual dexterity?—Yes, it does; for if girls obtain while they are young a correct method of wringing, rubbing, ironing, &c., with increased strength deftness and dexterity will come.

10357. Do you find they lose any of their manual dexterity as they grow older and their muscles get harder?—No, they don't lose it. They increase it by gaining more strength to carry out the methods taught.

11358. Will you tell us how these aims you mention are attained?—The supplementary object teaching may be illustrated by the following outline of the lessons on water, its sources, its impurities that affect the washing, and how they may be removed. I take a basin of water and tell them how it ran down the mountain sides in the Lake District, that it is soft, comparatively speaking, because we have no lime salts in our neighbourhood or in that neighbourhood. Then I tell them where our water is stored at Ulverston; that it runs in a stream from the Lake District, is stored in a reservoir at Ulverston, and is brought in pipes from Ulverston to Barrow. I also tell them that the Manchester people, ninety miles away, obtain their supply of water from the same source as we do, and although it goes so far that it is soft water. Then I tell them how to remove the impurities should they reside in a district where the water is hard, and why they should do so.

10359. Then you go on and apply the lessons on soap. Yes. Then I take other materials, and I show all the constituents of soap and the various materials I have to deal with during the course of the lessons.

10360. You mean besides soap?—Yes, such as rice for starch-making, and various disinfectants.

10361. Then you pay attention carefully to the arrangement of the children's notes?—Yes.

10362. Do you find that the lessons have the effect of securing interested attention with its incidental effects, and perhaps you would illustrate that?—I do. This interest is secured by combining home with the school. They bring their own soiled garments, and in their minds there is a connection between their homes and that garment, which again connects our school with the home. The garment brought by the child has an influence over the child which is not shared by the teacher. The mother sees the work done by the child, and should allow her to practise with the ordinary home arrangements, bringing the two interests together. Then, by bringing their own garments they know how dirty they are and the need for cleanliness. Again, a certain process will always be associated with that garment and with that class of garment.

10363. And is one of the effects that they take a pride in their own handiwork?—During the ironing lessons especially, the spirit of emulation is greatly exercised, and then pride in their own work is shown by their very careful manner of carrying the finished work so that it shall not be crushed, and the pains they take to keep their work free from creases, and also to carry it home as nicely as they possibly can.

10364. And in that way they learn perseverance and patience and accuracy?—Yes, my lord. This is very evident in the second course of training. Greater ease in manipulation tends to show that between the courses home interest has been secured. What I teach is carried out in their homes by mothers who take an interest in their children.

10365. And do you find the children gain experience under your direction of the various modes of making up articles, and of the utility and use of certain materials?—I show them such material as this (*Producing garment.*) That was taken from a child. You see some corrosive substance has been used to take out the blue colour, and leave the white spots. Such a material as that they should not buy. Then there is the old-fashioned fast-coloured material. It is well boiled, and the colours will not come out. Then there is another material (*produced.*) A child had a pinafore of this. It was nearly new at the time she brought it to me. The pinafore was gradually losing its colour, so I asked her, when that pinafore was done, would she bring me a piece of the old material to show the difference between the old and the new. They can see for themselves which colours will stand washing, and which will not, and which material should be bought to wear the best. Then with regard to their flannel washing, here I have three garments that were all the same size at the beginning (*produced.*)

10366. To show the effect of shrinkage?—Yes, and bad washing.

10367. The shrinking was caused by the bad material?—No; by the washing; I allowed them to spoil it.

10368. Will you tell us what arrangements there are as regards the lessons which the girls attend?—I believe there is a syllabus of the course on the table. The first lesson is a theoretical lesson in which I explain the reasons for washing, the choice of day, the material required. Then the next three lessons are washing lessons. The first lesson washing animal fibres, the next lesson washing collars and cuffs and anything included in uncoloured vegetable fibres; and the third lesson teaches how to wash coloured vegetable fibres. I like the girls to understand the sources of these materials, and if they can learn to wash animal and vegetable fibres correctly they cannot spoil any material afterwards.

10369. There is one question I should like to ask, do you wash in movable tubs or do you use fixed tubs?—I use what would be a bath in a workman's home.

10370. Professor FITZGERALD.—It is moveable?—Yes, they pick it up and empty it as necessary.

10371. CHAIRMAN.—You don't use fixed troughs with taps?—Nothing of the kind; we use zinc baths, 20 inches long, which are arranged on stools.

10372. You don't find there will be any occasion owing to the weight of these tubs being rather heavy to put in any fixed troughs?—I don't think it necessary at all. My baths stand on stools, and the children easily take them from the stools when necessary, and when they are too high for the shorter girls, the washing platform is adapted to their height.

10373. Mr. REDINGTON.—Are they not very heavy when the water is in them?—No. We have not above two gallons of water.

10374. CHAIRMAN.—It would not be necessary for the children to move those tubs when the water is in them?—Two girls always work together. It is one of my strong points that no child shall lift anything by herself. They work together, and the two handles of the bath are always held.

10375. Do you find the plan of giving ten consecutive lessons has the effect of more systematic work being secured, each child feeling that it is her own personal responsibility and individuality which is thus encouraged?—In the consecutive lessons the various stages are noted. Each lesson is recapitulated, and as the same girls get the same information, a greater hold on their attention is secured. No child is excused, but must take her turn in answering, and certain work is assigned to each girl apart from her lesson, and this she must perform. In the ten consecutive lessons the child begins with the garment and finishes it completely. Washes it, irons it, and airs it, and it is kept clean all that time. It does not get smutted nor dirtied, as it would if carried home. Mrs. Lord finds that difficulty in her lessons sometimes, as she states in this paper, "The Girl's Mistress."

10376. Is she giving lessons on the same principles, or taking intervals between the lessons?—Mrs. Lord takes intervals.

10377. Under that system the child would perhaps wash one garment, and must iron a totally different garment?—Yes, seven or eight weeks afterwards. You can see my attendances under the old style, and my attendances under the new (*producing books*).

These are the registers for the same school in 1893, and these are the registers used a few months ago.

10378. Captain SHAW.—The general effect is that the attendance is much more regular?—Much more so. Another point in regard to the bringing of garments under the intermittent system. One lesson is carried out each week with different classes of girls, and girls of the labouring classes cannot afford many changes of garment, and the beginning of the week is set apart for the renewing of those garments, and the cleansing of them. Towards the week's end we should not be able to get these garments. They could not be spared, and unless the child brings the garment, the lessons lose their value.

10379. You find, by your system, that the value of systematic washing is inculcated?—Very much so.

10380. What is the effect of disjointed teaching?—It fosters a slovenly habit of washing, setting a pan on the fire, and just washing the garment through. That is one of the great faults now of the labouring classes.

10381. You mean they have the article?—They don't boil the garment. They only heat the water, and just wash it through in so many cases, whereas the garment should be in the boiling water for twenty minutes or half an hour.

10382. That system they adopt would be merely to pour the boiling water over it?—Yes, or in many cases just to wash it through, dry it, and put it on the child straight away. Washing day in many houses is a time of great discomfort, and that is what I want to dispense with. I don't see why it should be so.

10383. How do you manage to dry the garments? I suppose the garments are very small?—Usually they have their own wearing garments.

10384. Do they dry them in the laundry?—On an ordinary clothes horse, such as they have in their own homes, and a rack above as used in many kitchens.

10385. You don't require a drying ground in the open air? You have no room for that?—We should have room, but on such a day as this we could not dry outside.

10386. Then you cannot have a systematic course?—No, but I have kindergarten poles and clothes lines to show them how to hang outside.

10387. Is it advisable when possible to dry in the open air in preference to warm air?—Oh! certainly, in every respect.

10388. And do you find that manual dexterity is given by insisting on correct methods of using ordinary appliances?—We use just the ordinary flat iron in the school, and we should heat them in front of an open fire-place, but we require more than we could possibly heat in an open fire-place. I take a class out in the country where we use an ordinary artizan's kitchen, and heat the irons there. We put the oven plate on the top of the fire and heat the flat irons in that manner.

10389. What is the general feeling towards laundry work as a branch of elementary education in Barrow and elsewhere?—It is now keenly appreciated by parents. The child never or very seldom comes without its proper garments, and if the child has not one she will borrow it, and it is willingly lent. Last year from December to December we washed 2,810 garments belonging to the children of Barrow.

10390. And now you find the parents appreciate this class of education?—They do, very much so.

10391. At first they did not?—They did not. It also affects the attendance. The head teacher said she found her average attendance increased six per cent. in Rawlinson-street school while the girls were attending the laundry centre. We were at work three weeks without one absentee, showing that this class of children are eager to come. The children who have partial exemption from attendance rise early to do their work, so that there is no need for them to stay at home. The workhouse officials and Roose residents ask for it, and girls are willing to walk long distances from Roose at one end and Ormesgill on the other, and they are now agitating for it at Walney Island.

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10392. Do you know about other districts outside Barrow?—It has not taken at all in Leeds, I believe, and it is rather resented in other districts.

10393. You are not alluding to the neighbouring districts?—It is not taught in the neighbouring districts, except at Dalton, and that is an off-shoot from our district, as that teacher and I were friendly.

10394. Is it laundry work that is resented in your particular plan?—Oh, no. I don't think my plan is adopted anywhere else.

10395. Have the Department taken any objection to your plan?—They have, by inserting clauses in the Code. They have not sent us any official objection but we quite expect it. They have inserted a clause that laundry work should not be taught more than two days in one week.

10396. That will upset your system?—It will. I don't know how it will be carried on in this intermittent system to get the work nicely done, and Mrs. Lord has experienced that difficulty, for she says "Don't allow a child to iron a dirty garment." How can it be clean when it is carried a long distance?

10397. Professor FITZGERALD.—These object lessons in laundry work that you have brought down, they might be put into a museum for the children to look at?—Each child handles the garment herself, and that is better than museum work.

10398. Do you not think that having washed it until it shrunk gives them a practical impression as to what will happen if they do it wrong, and no amount of looking at in a museum would do that?—They have their notes down before I bring out this. In washing flannel, materials required—luke-warm water, melted soap; ammonia if white or undyed flannel, salt or vinegar, if coloured. What are the points to aim at—Quick washing and quick drying. What have you to avoid? Avoid steeping, rubbing, boiling, the use of soda, the use of cold water, too much heat, too much soda. Now I can show what has shrunk these—too much heat, and the use of cold water and too much soap.

10399. And the knowledge that they have been shrunk in the school?—The children all know this, for if they come a second time they remember it from the first. We never wet these now; they were spoiled in our first year's course.

10400. Would it not be well that they should spoil them occasionally year after year in order to see the effect?—It would be only one set of fourteen that would do that, and we have fourteen new girls every week.

10401. A school garment might be used week after week and gradually spoiled?—It would not take much spoiling. One bad washing would spoil it completely.

10402. Captain SHAW.—The regulation of the Department does not say that you are only to teach laundry work two days of the week. It is a maximum of eight hours in one week. That would allow you to give four lessons of two hours each in the week?—Yes, it would.

10403. Could you carry it on with that?—I could, to a certain extent, for one day's lesson. In the morning they could bring collars and cuffs and wash them, and in the afternoon they could iron them.

10404. Suppose you had the children for four days a week could they not go on as well as if in the morning and evening—is there not an objection to their doing so much on the one occupation?—Yes; there is the objection that they may get tired. That is to my mind the only objection, but if you remember the children sit a while to take down their notes.

10405. But you don't consider that in eight hours in one week in four lessons in the morning you could get through a satisfactory course of laundry; if they went away in the afternoon they could leave their things there and they could not get them very dirty?—Not for that time, but I have not really thought out the new course yet. In regard to mangling and

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folding. I don't think Mrs. Lord takes folding and mangling, and it is one of the main points that in a labourer's home, more folding and mangling is done than ironing.

10406. But how much time do you propose that a labourer's wife should devote to washing in the week?—She should wash and fold in one day. She should prepare on the Monday, then get up early and wash all day Tuesday if necessary, fold them before she retires for the night, leave them all night in the basket, and then finish them next day, mangling and ironing; but she cannot do them properly in one day.

10407. Then in three days they get through the operations?—They do.

10408. If you have four days to teach the children could you not get through it?——

10409. Professor Fitzgerald.—Can children wash as quickly as grown up people?—But you must remember there are the theoretical reasons that would take up one half day in the first lesson, and another half-day in taking home their garments when they are finished. Each child folds them as if they were coming from a steam laundry, and they get into the way of seeing how a garment looks when it is completed.

10410. Could you give us a little information as to these housewifery classes in Belgium which you visited?—Yes, I can, but it is all memory work; I took notes at the time—but I cannot find them now.

10411. Perhaps your impressions of them would be useful to us. In the first place, in these housewifery classes, what do they teach?—Cookery, laundry work, home mending, such as darning stockings and mending clothing, and in another section dressmaking.

10412. They do some sick nursing, too?—Yes; I believe they do.

10413. Is there a special laundry and special kitchen in each centre?—In the centre I visited there were four large classrooms in the basement of the building—the first classroom was devoted to washing, as far as I remember; the second one to ironing, the third, a kitchen in which mending and household arrangements were taught; a fourth for purchasing, and for the cooking of goods bought.

10414. Were there four rooms devoted to laundry work?—No; to domestic economy. The first room was devoted to washing; the second to ironing; then a kitchen, in which they did their darning, and in the fourth room cookery.

10415. How long do the girls attend there?—For the dressmaking I believe it was every afternoon, and, I fancy, forty attendances in the other—that I cannot be sure about.

10416. Did they attend consecutively there for laundry work?—I believe they did, but that is a point on which I cannot be sure. Mr. Hawcridge told me about these centres in the first place, and I read of them afterwards in this paper, *The Nineteenth Century*. My brother lives in Holland; I thought I should like to see him and afterwards visit the schools of domestic economy in Brussels. He wrote to the Director but he received no reply, so I went on my own responsibility, and asked to be allowed to visit this school.

10417. Can you teach laundry work in an ordinary kitchen?—We have done so to twelve girls in the Roose district.

10418. I suppose habitually the washing is done in the kitchen?—It should be done so.

10419. Then it is no disadvantage to combine one room for cookery and laundry instruction at separate times?—It is no disadvantage, in fact, it should be a preparatory home training; but I fancy Miss Deane, the instructress, would object to it; she seemed to wonder at our taking a course of lessons in such a room—the children wished it, and we could not do otherwise.

10420. Mr. Struthers.—Do you propose to change your system of teaching laundry work in view of the new demands of the Code?—We shall be forced to change our system if that clause is retained in the Code.

10421. But you will probably make some representation to the Department?—I should like to do so. I take up the home training and home living, and in the working classes they do not possess many changes of garment.

10422. Fourteen girls come every day of the week?—Yes; for two hours each lesson.

10423. Mrs. Lord took thirty hours for her course of lessons; she says a lesson cannot be given in less than three or three and a half hours—do your fourteen girls come every day of the week, both forenoon and afternoon?—Yes; Monday morning until Friday afternoon.

10424. And you think you could not get the same result by children attending on half days?—I am sure we could not. To see the interest the girls take in the work, you have to be present at the whole course, of the fourteen present on Wednesday morning—twelve had brought their old exercise books.

10425. Chairman.—I suppose you don't know why the Department have made that new rule?—I do not.

10426. It has not arisen out of anything that has happened in your school?—Nothing to our disadvantage that I know of.

Mr. Edmund Morris.

Mr. Edmund Morris, Instructor in Woodwork to the Barrow-in-Furness School Board, examined.

10427. Chairman.—You are head master of the woodworking school under the Barrow-in-Furness School Board?—Yes, my lord.

10428. Will you tell us what you regard as the general considerations affecting the manual training exercises for boys between the ages of ten and fourteen?—In the first place, we must take into consideration that the work is not a preparation for a trade, that it must be a part of general education; the reasons for this are that the age, and physical and mental powers of the children prohibit us from giving a trade training. Then we have to consider that all the boys will not follow a trade; some of them, of course, will take up professions. Then if our instruction is to be a trade training we are compelled to teach different trades, because all boys will not follow the same trade. If we take Barrow, there are over fifty distinct trades taught in this town; and if we are to give a trade training to the boys, then we must either teach all trades, or make a selection of trades. If we make a selection, that would be unfair both from the workmen's point of view and from the child's point of view. Another reason why we should not attempt to teach a trade is, that a boy after he attends a course of woodworking for three years, that is, passes through standards 5, 6, and 7, in that time he will not make more than 240 hours attendance at lessons on a subject, and that is only equal to what an apprentice in a workshop will put in in about five weeks, so that it is an impossibility for us to teach a trade in about five weeks, if we are to teach trades.

10429. Do you say an apprentice could put in 240 hours in five weeks?—An apprentice will put in at least 50 hours per week, and in five weeks he will have put in 250 hours, whereas a boy who has been in the school workshop for three years will not put in more than 240 hours.

10430. What do you consider to be the essential conditions of successful effort?—In the first place, the subject must be interesting. What we want to obtain on the part of the pupil is voluntary attention, and if the subject is not made interesting we don't secure that attention.

10431. You consider, do you, that the necessity of securing this increased attention is the chief factor

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which must determine the character of the exercises to be undertaken?—Yes; if the exercises are not interesting, the attention is only temporary and due to curiosity.

10432. How would you secure this increased attention?—By making the subject as interesting as possible. The objects which we should make should be completed objects; if a boy is making a complete object, he is more interested in his work than if he is working at an abstract exercise.

10433. You would have to take care that the work should be within the pupil's capacity in the earlier stages?—Yes.

10434. And upon what should it be based in the earlier stages?—It should really be based upon the work the boy has done in the ordinary schools; it should proceed on the lines of working from the easy to the difficult—from the known to the unknown.

10435. Explain that a little more by illustration. Do you mean he should proceed from advanced kindergarten to manual work?—The children in the infant school take up kindergarten; in the other standards they continue those kindergarten exercises in the shape of cardboard modelling, &c., and the lessons should be really a continuation of these lessons given in the lower standards.

10436. And you consider they should involve no marked departure in method from the ordinary school work?—No.

10437. You further think that they should gradually and imperceptibly proceed from simple manipulations readily performed to those more complex, and making greater demands on the worker?—If the work is too difficult at first the boy becomes discouraged, and gets tired of the work before he has completed it.

10438. Should the teacher remember that the mental development of his pupils is only such as to permit perfect knowledge and expression of what is the result of actual personal experiment and observation?—A boy only understands that which he can make, or has made himself. If he is working on some object that he does not see the value of, or understand the appplication of, then we are not following on the lines that we ought to.

10439. Do you think that the aims that you have in view are best secured by making completed things, and not details or parts of things, and if so, why?—In the first place, we ought to make complete things instead of parts of things, because a boy takes a greater interest in making a completed object that he can use for himself, or that can be used at home. It causes more interest in that kind of work than doing abstract exercises. Then I don't think it is necessary to give abstract exercises, because if the necessary exercises are made upon the wood from which the model is to be made, the boy, besides giving greater attention, concentrates his mind more upon it than he would do if engaged in abstract exercises.

10440. Do you find that more wood is consumed in making the completed things or in making abstract exercises?—Abstract exercises. In the first place, the models ought not to take up a large quantity of material; a boy ought to be taught and ought to understand that he can make a useful object from small pieces of wood; that it is not necessary that he should have a large piece of material in order to make something useful.

10441. Has woodworking in Barrow been looked upon as an essential part of the school course?—It has.

10442. With what intention?—The chief being to develop the physical and mental powers of the child, and also to give dexterity.

10443. Do you find that the regulations of the Science and Art Department have restricted you in any way?—Yes.

10444. Will you tell us how?—In the first place the Science and Art Department issued a circular stating that managers are left a free hand in formulating their own schemes, provided certain tools are used. Then they give a number of suggestions on which the scheme might be drawn up. These suggestions are generally interpreted or rather looked upon by the inspectors as regulations, and the tests which are given on the examination day are in accordance with these suggestions, so that we, practically speaking, are told that we have a free hand, but still on the examination day we find we have not had the free hand we thought we had.

10445 Will you tell us something about the work done in Barrow-in-Furness, and the conclusions that have been drawn from this work?—In the first place when manual instruction was commencing at Barrow-in-Furness a carefully graduated course of exercises in the making of models was drawn up. This was strictly adhered to, and we obtained very satisfactory results; in fact the inspector told us that he had come to the workshop prejudiced against our system. He had prescribed previous to the coming to the workshop what the tests should be. These were exercises in carpentry, and they were done with the greatest skill, and he told us that he had come to the conclusion, and would report to the Department, that he considered the accuracy displayed by the boys was owing to the system of making completed objects rather than working a course of abstract exercises. Then, of course, I have just mentioned with reference to the suggestions that are given in the circular, that the method that we would adopt if we were left with a free hand would be the making of completed objects. We would include in that course a number of joints, but any joint that was made must be involved in the making of the model, not in an abstract exercise.

10446. How does the work assist and continue the ordinary school course?—In the first place with respect to drawing, from what I have heard from the teachers, they find that solid geometry is taught more intelligently to boys that are undergoing a course of training in woodwork than to boys who don't undergo that course.

10447. They can see what is meant, as well as learn it from the flat?—The boy sees the use of his drawing copy and life is given to the subject.

10448. What are the incidental results obtained by the woodworking?—The incidental results are that we notice that boys readily adapt themselves to the various trades they go to.

10448a. They acquire manual dexterity and powers of observation?—Yes. I have a case in hand where our caretaker has a boy undergoing an apprenticeship at the ship-yards as a joiner. The father told me that the man the boy is working with said that the boy was almost as far advanced when he went there as most boys are when they have been there twelve months. Then we have another, to show that the boys get a good general training in manual dexterity, namely, the boy assisting the science demonstrator at the school, who shows that he can readily make any simple apparatus that is required in the laboratory.

10449. Rev. Dr. Wilson.—Is working in woodwork made compulsory in all the Board schools in Barrow?—It is really looked upon in the same light as the ordinary subjects. All the boys in standards 5, 6, and 7 attend the classes.

10450. With regard to cookery and laundry, are they made compulsory for the girls?—Well, I cannot really answer that.

10451. Professor Fitzgerald.—Do you make all the boys in the schools go at the same rate or do you let each boy go at his own rate?—Let each boy go at his own rate.

10452. You think it is important that each boy should be allowed to go at his own rate?—Very important.

10453. Do you do the drawing in the school or in the manual training centre?—In the manual training centre.

10454. Do you think it could be well done in the school?—I would prefer to do it in the manual training centre; then the manual instructor knows what is really being done. It is better to have it in his own hands than to leave it in other people's hands.

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Mr. W. Marsh.

Mr. W. Marsh, Head Master, Holker Street School, Barrow-in-Furness, examined.

10455. Chairman.—I think you are the head master of the Holker Street Junior Mixed School?—Yes, my Lord; it is a school of 600 children, roughly divided into 200 in each standard, 1, 2, and 3.

10456. You have no standard above standard 3?—No.

10457. Have you an infant school?—Next door.

10458. As regards manual and practical instruction, how is the scheme of the Barrow School Board adapted to the needs of standards 1, 2, and 3?—The scheme of manual instruction issued by the School Board in February, 1894, indicated the following lines for standards 1, 2, and 3. We had to consider the eleven solids, the sphere, the cube, the cylinder, the hemisphere, the square, the prism, the right-angle and the triangular prism, the ellipzoid, the ovoid, the cone, and the pyramid. They had been considered slightly in the infant school, we had to consider them in greater detail, and the following continuation of the kindergarten was adopted. First, modelling in clay; second, colour work; third, folding, cutting and mounting of paper; fourth, modelling in carton; whatever methods we adopt in carrying out this scheme the habits of exact observation, accuracy and neatness are to be carefully trained, and the faculties of hand and eye developed, so as to relieve the undue training of purely mental activity. The teachers had full play given to their individuality, and I at once set to work to bridge over the gulf that had previously existed between kindergarten and the woodwork in the upper standards and laundry and cookery. I take clay modelling. Every authority I had consulted (except Dr. Goetze of Leipsic, who is rather against clay modelling) Dr. Creighton Browne, and others were fully convinced it was the most fruitfully educational of all the occupations. From its plastic nature, soft clay seems to have a sympathetic attraction for a child. To train a child's powers of observation, accuracy, especially in perception of form, dexterity of hand, improving the sense of touch, concentrating attention, clay-modelling easily out-distances all the other occupations. Unfortunately, teachers in primary schools seem to have an objection to it; they fancy it is dirty, and not educationally beneficial; we find it anything but dirty if carried out in the right direction, and a very valuable training. It lacks a training in the sense of colour, but we meet that difficulty with our Colour work. It is most beneficial, it helps the teaching of geography and object lessons. I have drawn up a scheme, and before any model is made the children have an object lesson on it. When Her Majesty's inspector first saw clay modelling in my standards 1 and 2, he was so pleased he at once said—"I will ask no questions in geography in this school, you shall have the full marks."

10459. What had you done?—Standards 1 and 2 have to know all about the definitions of land and water. I simply said—"You can model as many geographical forms as you can on your slates." The children can readily answer any questions in geography after having a dozen lessons in clay modelling, they are describing what they have really made and not what we have told them. We might tell them, for instance, that an island is a piece of land sticking up out of the water; but when they model the island, and put the water on the slate, and let it run round, they remember it, and we have no more trouble. You might have written the definition a hundred times and they would not remember it.

10460. What they learn by the modelling is the definition of isles, peninsulas, and continents?—Yes; in the upper standards I should take up solid geometry or history, modelling of battle-fields, &c.

10461. Would you tell them to make a raised model of the Lake country?—No; it is a very difficult part to model, but we draw a map of Walney island, from which we make a raised model. I have seen some very good models in Swiss schools, but they were very expensive; I asked the price of one of the districts round the school and was told it was £80.

10462. Who was that made by?—Some professional modeller, it had not been made in the school. It is the cheapest of all forms of manual work, when you have once bought one cwt. of clay and a tin to keep it in, you have no more expense.

10463. Can you give us some illustrations of the individual lines taken in your own school?—It would be far better if I take you round this room, and show you the models. I have taught this systematically and continuously for four years, and the objection usually brought forward that other subjects suffered, I have proved to be an utter fallacy. My own reports I offer in confirmation of this, I have always obtained the highest grant, and I have got it easier the last four years than I ever got it before. It has helped me to counteract in some way the growing nervousness which I find in children of the day. A nervous child, if it is given something to do soon forgets its nervousness, and I think it is the only effectual check to nervousness. For the first time in his life, a dull lad has a chance of getting on the same plane with sharper children, and that gives him an incentive to renewed vigour in his other lessons.

10464. You sometimes find that a child who is quick at books in comparison with another child is not so quick as the other child at manual work?—Certainly; I have a class of children that are mentally weak or very backward, have been driven in by the School Board officers, and we find the best clay-modelling is done by them. In carton work I have been extremely successful. I saw the first idea in a school in Leipsic, and I was so taken with the idea that I at once took a course of advanced kindergarten after I had finished my cardboard modelling. I have here models made by adult German teachers, and here are models made by little children of the third standard. You can compare for yourselves. We really don't know what a child can do. It is such a grand preparation for cardboard modelling; it also helps in the understanding of solid geometry. *(Specimens produced.)*

10465. Monsignor Molloy.—It is in fact teaching solid geometry in a concrete form?—Yes.

10466. Professor Fitzgerald.—I would like to ask whether they find it more difficult to understand the word peninsula or the word sphere?—We model a sphere.

10467. But you don't find it a bit more difficult to teach them the word sphere than the word peninsula?—No; we model a sphere and model a peninsula, then cut away some of the clay and make the peninsula an island. The Colour work in standard 3 is the most popular work in my school.

10468. Do they do any designing of their own for this colour work?—No, but when a lad has done a good drawing he may be allowed to colour it, but not until he has got some sense of harmony.

10469. Mr. Redington.—You have been in Leipsic following a course of manual training?—Yes, at Dr. Goetze's college.

10470. Are you acquainted with the system of instruction in elementary schools there?—I visited several, but could see no manual work. I visited the Sixth Burger school, and there is no manual work done there.

10471. Is there cardboard work?—Not done in the school. The children assemble at the Manual Training College, twenty-five on a Wednesday, and twenty-five on a Saturday afternoon, and it is taught by the teacher.

10472. Is it done out of school hours?—I could not say. Saturday afternoon would be out of school hours.

10473. Do all the children in turn go to these classes ?—No, they were the same children I saw for three weeks running.

10474. Have you any idea what number of children in Leipsic are doing cardboard work ?—I asked repeatedly to be taken to schools where I could see this done, and I could never get an answer. I visited three of the largest schools and asked them to show it to me and they could not.

10475. And manual work is not taught ?—No.

10476. What is the object of Dr. Goetze's training college ?—To train teachers in manual work: there are not enough teachers.

10476A. How long has the college been established ?—Six or seven years.

10478. The teachers that are trained there might teach this manual work if they wished: why do they not ?—I don't know, but they did not do it in Leipsic, except at the Manual Training College on Wednesday and Saturday afternoons.

10479. Do you think that the school authorities in Saxony object to this manual work in elementary schools ?—I could not say.

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10480. There must be some reason for this not being taught in elementary schools ?—The question I asked was "Why do they come here for training if you cannot show me schools in which this teaching is being carried on."

10481. Do you know whether it is taught in other parts of Germany in elementary schools ?—I don't know. I should think it would be taught when these teachers have been trained.

10482. In what year were you at Leipsic ?—1893

10483. Do you know whether any change has occurred since ?—I do not.

10484. Did you hear any expression of opinion from school authorities on the subject of manual training ?—No, not from school authorities. With English teachers we discussed it among ourselves.

10485. You are of opinion that cardboard work is valuable training ?—Certainly.

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Printed for Her Majesty's Stationery Office,
By ALEX. THOM & CO. (Limited), 87, 88, & 89, Abbey-street, Dublin,
The Queen's Printing Office.